

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

+ + + + +

BRIEFING ON
STATUS OF NEW REACTOR LICENSING ACTIVITIES

+ + + + +

NUCLEAR REGULATORY COMMISSION

1 White Flint North
Rockville, Maryland

+ + + + +

WEDNESDAY

May 29, 2002

+ + + + +

The Commission met in open session,
pursuant to notice, at 9:30 a.m., the Honorable GRETA
JOY DICUS, Commissioner, presiding.

COMMISSIONERS PRESENT:

NILS J. DIAZ, Member

GRETA J. DICUS, Member

JEFFREY S. MERRIFIELD, Member

EDWARD MCGAFFIGAN JR., Member

**(This transcript produced from electronic caption media
and audio and video media provided by the Nuclear
Regulatory Commission.)**

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

STEPHEN BURNS, NRC, Deputy General Counsel

SAMUEL COLLINS, NRR

FAROUK ELTAWILA, RES

MARVIN FERTEL, NEI

EUGENE GRECHECK, Dominion

THOMAS KRESS, ACRS

JAMES LYONS, NRR

CARL PAPERIELLO, DEDO

JAMES RICCIO, Greenpeace

ASHOK THADANI, RES

I-N-D-E-X

<u>AGENDA</u>	<u>PAGE</u>
Opening Remarks by the NRC Acting Chairman	4
Presentations:	
Dr. Carl Paperiello	7
Mr. James Lyons	11
Dr. Farouk Eltawila	23
Dr. Thomas Kress	69
Mr. Fertel	76
Mr. Riccio	85
Mr. Grecheck	91
Questions	104

P-R-O-C-E-E-D-I-N-G-S

9:31 a.m.

COMMISSIONER DICUS: Well, good morning, ladies and gentlemen. On behalf of the Commission, I'd certainly like to welcome all of you to this morning's briefing, which is on the status of new reactor licensing activities. Clearly, I'm not Chairman Meserve. The Chair did participate in some rather serious manual labor over the weekend in his yard, and he is flat on his back with a bad back, so he can't be with us today. So I'm Acting Chairman, at least for the first part of this briefing, and then I'm going to have to leave and Chairman -- Commissioner Diaz will take over as Acting Chairman at that point.

I apologize for that, but I had long before this had been established, I had committed to give some remarks at a retirement luncheon for Lake Barrett who is DOE's Yucca Mountain project. So I need to leave and represent the Commission there, so Commissioner Diaz will take over at that point.

In the event that the staff's presentation does not get finished before I have to leave, I do have some questions, and so we will submit them as a matter of record for this briefing if they're not answered during the period of time that you present your slides.

I should also like to recognize Ms. Linda Keen who is the President and CEO of the Canadian

1 Nuclear Safety Commission. She and the Canadian
2 Delegation are sitting in with us for a while this
3 morning to observe a Commission meeting, so let's all be
4 on our really good behavior.

5 (Laughter.)

6 We will hear presentations from the NRC
7 staff and then several of our stakeholders regarding
8 their views on the initiatives being pursued by the
9 nuclear industry in preparation for a possible
10 resumption of nuclear power plant orders after a hiatus
11 of more than 25 years and the complementary initiatives
12 being undertaken by the NRC to ensure that we are
13 prepared to meet our regulatory responsibilities when we
14 receive applications for certification of new designs,
15 early site permits or combined construction permits and
16 operating licenses for new reactors.

17 This is an area in which the amount of
18 activity has been rapidly increasing. A few years ago
19 the suggestion that new nuclear power plants might be
20 built in the near future would likely have been scoffed
21 at. However, the influence of a number of political,
22 economic and technical factors has served to make the
23 nuclear option attractive again. The industry, with
24 support from the Department of Energy, is vigorously
25 pursuing technical, financial and regulatory issues
26 associated with new reactor designs and the NRC has
27 followed suit.

1 We have established groups within our major
2 program offices to address issues related to new
3 reactors. We are currently reviewing Westinghouse's
4 application for design certification for the AP1000, and
5 we are in "pre-application," in quotes, discussions with
6 several other reactor vendors. We also expect to
7 receive three applications for early site permits during
8 calendar year 2003. And we are examining our regulatory
9 infrastructure in this area to ensure that we are
10 prepared to conduct our reviews in an efficient and
11 timely fashion.

12 We will begin this morning with a
13 presentation from the NRC staff, discussing current
14 Agency activities and future plans related to new
15 reactor licensing. So now I'd like to turn to my
16 colleagues and see if any of you would like to make an
17 opening statement.

18 Okay. With that, then please proceed, Dr.
19 Paperiello.

20 DR. PAPERIELLO: Good morning. Madam
21 Chair, commissioners, the staff is here today to brief
22 the Commission on new reactor licensing activities and
23 issues. With me today are Mr. Sam Collins, Director of
24 NRR; Mr. Ashok Thadani, Director of the Office of
25 Research; Mr. Farouk Eltawila, the Director of the
26 Division of Systems Analysis and Regulatory

1 Effectiveness; and Mr. James Lyons, Director of the New
2 Reactor Licensing Project Office.

3 The staff today is going to be informing
4 the Commission of activities since the last briefing on
5 this topic, which was held on July 19 of last year. And
6 they will be discussing both current activities as well
7 as upcoming challenges. With that, I'd like to turn it
8 over to Mr. Sam Collins.

9 MR. COLLINS: Thank you, Carl. Good
10 morning. I have a clarification. Does this mean that
11 there's more time for questions or less time for
12 questions.

13 COMMISSIONER DICUS: More time.

14 MR. COLLINS: More time, okay. I want to
15 be sure it's clear. Thank you. Before we start the
16 formal presentation, I'd like to make a few brief
17 remarks and then move quickly onto the formal
18 presentation by the staff.

19 As mentioned by Commissioner Dicus, Acting
20 Chairman, this is an exciting area for the Agency at
21 this point in time. We continue with our preparations
22 for the product lines that will be discussed today, and
23 there are many policy questions before the Commission
24 and yet to be identified and addressed by the Commission
25 and the staff. These include not only technical
26 challenges but clearly infrastructure issues too, and

1 we'll be talking about some of those today during the
2 course of our discussions.

3 We have been looking forward to this
4 challenge by forming an organization in the Office of
5 Nuclear Reactor Regulation with our counterparts in
6 research to address these challenges, and we have Jim
7 Lyons here today as the head of the Organization to lead
8 the technical discussion, along with Farouk.

9 The ESP, early site permits, are the first
10 product line to develop recently, although we have
11 certified designs that have taken place in the past as
12 well as the Part 52 infrastructure that has been
13 developed in the past. So we have a pretty good track
14 record in this area as far as being able to achieve
15 goals.

16 However, in light of the new way of doing
17 business, which includes the strategic plan and the
18 business modeling, as indicated by the way that we have
19 approached license renewal and power uprates, we will
20 attempt to address the challenges having to do with new
21 licensing and early site permits in that businesslike
22 manner. And I think today you will hear some of those
23 challenges in terms of a stable, predictable, timely,
24 transparent regulatory process with stakeholder
25 involvement to ensure that we have proper planning and
26 coordination to achieve those goals.

1 And those include stakeholder obligations
2 as far identifying product lines, doing that in a timely
3 way and providing for our schedulers to provide for
4 integrated work coordination. As you know, we had three
5 early site permits, and we'll talk about the challenges
6 of those coming in concurrently in Jim's presentation.

7 Our strategic plan goal is to maintain an
8 effective regulatory infrastructure to assure the
9 maintenance of safety during construction of envision
10 advanced reactors. And we will encourage applicants,
11 vendors and others to inform the NRC at their earliest
12 opportunity of planned future reactor activities so that
13 we will be prepared to respond.

14 As far as planning is concerned, it's based
15 on the schedule and resource estimates given in a
16 Commission paper at SECY-01-0188. There are a number of
17 other products that Jim will go through quickly during
18 the early portions of his presentation, which will
19 outline the beginnings of our infrastructure and some of
20 those policy decisions for the Chairman today -- for the
21 Commission today, excuse me.

22 Our activities are prioritized in
23 conjunction with other Agency work. As you know, the
24 Commission has challenged us in license renewal and also
25 in power uprates to maintain those highly visible and
26 programmatic areas on schedule, and we have been able to
27 do so.

1 This is a dynamic situation, as you know,
2 by the emergence not only of the technology lines but
3 also by the investment in the technology lines, as
4 indicated by the recent decisions in the PBMR and some
5 of the emerging technologies, which Jim will mentioned,
6 which our challenge is to the staff, because they have
7 been identified but they have not been committed to.
8 And particularly in remarks by our key members in
9 research, there is long lead planning that is necessary
10 for some of these emerging technologies. We need good
11 information from the industry, including the timing of
12 applications, which can have a large impact on NRC
13 resources, and we need realistic schedules for proper
14 planning and for proper identification of measurable
15 goals.

16 We had a meeting yesterday with the early
17 site permit, and many of the stakeholders are in the
18 room today who took part in that meeting, which took
19 place here in headquarters, and Jim will be talking
20 about that today. So unless there's any further
21 questions, I'll turn the first part of the presentation
22 over to Jim Lyons.

23 MR. LYONS: Thank you, Sam. Good morning.
24 If I could have the second slide of my presentation
25 overview. Good morning. I'm going to provide you with
26 the status of the new reactor licensing activities.
27 I'll discuss the work we've accomplished since we

1 briefed you last July, our current activities, how we
2 are interacting with our stakeholders, and I'll end with
3 a discussion of some of the challenges we face when it
4 comes to scheduling our efforts. Then Farouk Eltawila
5 will discuss some of the technical and policy issues the
6 staff is working on and when we expect to engage the
7 Commission on those issues. If I could go to Slide 3,
8 please.

9 The next four slides list the papers that
10 we provided the Commission in the last year, and I'll
11 walk through these fairly quickly. The future licensing
12 and readiness inspection readiness assessment provided
13 our assessment of the staff's readiness to conduct
14 future licensing activities and inspection activities.
15 It concluded that we were ready to complete the
16 activities we're engaged in, less notably the pre-
17 application review, reviews of the PBMR and the AP1000
18 standard design. But we also indicated that additional
19 work would be needed to be ready to conduct combined
20 license and early site permit activities.

21 SECY-01-0207 provided the staff's initial
22 positions on a series of legal and financial issues that
23 were related to Exelon's Pebble Bed Modular Reactor and
24 also has some generic applicability. Since then, the
25 staff has held a public workshop on the issues and has
26 met with the Nuclear Energy Institute to get feedback on
27 the issues, which has generic applicability to modular

1 and merchant plants that are envisioned in the future.
2 We will be providing the Commission with our final
3 proposal on these issues in August. Slide 4.

4 This paper informed you that we had
5 completed our pre-application review of the AP1000, and
6 we provided the staff's basis for accepting the use of
7 design acceptance criteria for the AP1000 standard
8 design in the areas of instrumentation and control,
9 human factors, control room issues and the piping
10 design. Slide 5.

11 Last month, we provided the Commission with
12 our position on the use Programmatic ITAAC and included
13 in that paper was a legal analysis by the Office of
14 General Counsel. And we are awaiting the Commission's
15 decision on this issue. Slide 6.

16 Earlier this month we provided you with two
17 papers. First was our semi-annual update of the
18 readiness assessment that gives the status of our new
19 reactor licensing activities and is the basis for this
20 presentation, and we also provided a proposed change to
21 10 CFR Part 52 for early site permits, design
22 certifications and combined licenses.

23 Slide 7 lists the current activities that I
24 will be discussing in more detail on the next series of
25 slides.

26 Slide 8 takes us to the PBMR pre-
27 application. As you know, Exelon announced on April 16

1 they will not proceed with the PBMR project beyond the
2 current phase that they're in. We met with Exelon last
3 week to develop a plan to bring this project to a
4 logical conclusion. We agreed with Exelon that the
5 staff and Exelon will document the status of the review,
6 where we are now, so that a future applicant or a future
7 vendor could come in and pick up that review fairly
8 easily and at least know what we had completed and what
9 issues needed to be addressed. As I discussed before,
10 we provided our recommendations on modular and merchant
11 plan issues and we will be providing our final status of
12 those in August of this year.

13 We move on to Slide 9. As we discussed
14 before, Westinghouse applied for a design certification
15 for the AP1000 on March 28. We're in the process of
16 completing our acceptance review of their application,
17 and we will be issuing that shortly. And we are also
18 preparing a detailed schedule and resource estimate that
19 we will provide to Westinghouse in late June or early
20 July. And as I discussed, as part of our pre-
21 application, we did find the use of design acceptance
22 criteria acceptable for the AP1000 design. We also, in
23 part of our pre-application review, looked at issues
24 related to some exemptions that they had requested for
25 AP600 that would still be applicable to AP1000, and
26 looked at the applicability of the testing and analysis

1 that they had done for AP1000 that it would still be
2 applicable for AP1000.

3 Slide 10, we have started a pre-application
4 review of the General Atomics GT-MHR. I'm sorry,
5 there's a mistake on this slide. We actually responded
6 to General Atomics on May 13, not May 14. The pre-
7 application review that we're working with General
8 Atomics on will be similar to the one that we had
9 planned for PBMR. It will familiarize the staff with
10 the GT-MHR design and technology and allow us to assess
11 our analytical tools and to establish an independent
12 staff capability to quantitatively assess the high
13 temperature gas reactor safety performance. And in
14 addition, we'll be identifying key technology issues and
15 safety implications and including the research that
16 would be needed to address these issues.

17 Slide 11, a lot of work has been going on
18 on early site permits. As you know, in June, we expect
19 Exelon and Entergy to apply for early site permits for
20 the Clinton and Grand Gulf sites, and then in September,
21 Dominion -- these are in September of '03 -- Dominion
22 will come in with their application for the North Anna
23 site. For the early site permit, the staff reviews the
24 environmental impact, or how the nuclear plant will
25 affect that site; the site suitability, or how the site
26 will affect a plant that would be placed on that site;

1 and the site emergency plan, or whether there are any
2 impediments to developing a site emergency plan.

3 Yesterday, as Sam had indicated, we held a
4 kickoff meeting with all three prospective applicants to
5 discuss pre-application activities. The pre-application
6 activities, while not required, are meant to make the
7 review more efficient and effective when we actually
8 receive these applications. We will work to resolve the
9 issues that NEI has identified in a generic way. Some
10 of those issues are the quality assurance requirements
11 for the early site permit information, the data that
12 they're gathering now. We're looking at early site
13 permit inspection guidance and guidance on seismic
14 evaluations that are required by Appendix S to 10 CFR
15 Part 50, which looks at a seismic hazard analysis that
16 wasn't done back when we were doing construction reviews
17 previously.

18 In addition, we discussed the nature and
19 timing of the NRC's activities that would be held prior
20 to the early site permit application, and one of these
21 is public meetings that we want to hold in the vicinity
22 of each proposed site to describe our process for
23 issuing an early site permit and to inform the public
24 how they can be involved in the process.

25 To move on to infrastructure development,
26 the next slide, we're developing the infrastructure that
27 would be necessary to perform these new reactor

1 licensing reviews in an efficient and effective manner.
2 As I discussed before, we have provided a proposed
3 update to 10 CFR Part 52. In addition, we are
4 addressing two NEI petitions for changes to Part 52
5 regarding the use of existing data for early site permit
6 applications and the elimination of reviews of alternate
7 sites, alternative energy sources and the need for
8 power. We will provide recommendations to the
9 Commission on these petitions in September. We are also
10 developing plans to revise Tables S3 and S4 in Part 51,
11 which deal with the environmental effects of the uranium
12 fuel cycle and the transportation of nuclear fuel and
13 waste. And we're also looking at other rules that are
14 discussed in our readiness assessment that I won't go
15 into.

16 We have formed a team of headquarters and
17 regional representatives with construction and
18 inspection experience to update the construction
19 inspection program. The initial focus of this team is
20 on the guidance for early site permit applications,
21 because we are expecting to start work on those even
22 this year.

23 In addition to the Programmatic ITAAC issue
24 that I discussed before, we are working with our
25 stakeholders on how the ITAAC process will be
26 implemented once a combined license is issued. Some of
27 things we're looking at is how the staff will document

1 its review of ITAAC completion and the criteria for
2 reopening an ITAAC after the staff has found it to be
3 essentially completed.

4 The staff is developing an advance reactor
5 research plan that will be provided to the Commission in
6 September. Elements of the plan are to develop
7 analytical tools and data to allow the staff to
8 independently confirm an applicant's safety basis. It
9 will also provide the technical basis for any regulatory
10 changes that we are developing and, as Sam indicated, we
11 want to identify any long lead time issues that need to
12 be started now in the near term to prepare us for the
13 future non-light water reactor designs.

14 In a related activity, the staff is
15 developing a common set of risk-informed initiatives
16 that would be applicable to both operating and new
17 reactors. NEI submitted a proposed white paper
18 proposing improvements that would be applicable to all
19 reactors. This will be discussed in more detail in the
20 June 2002 update of the risk-informed regulation
21 implementation plan.

22 Stakeholder interactions. We've been
23 trying to work with all of our stakeholders. We've held
24 two public workshops, one describing the future
25 licensing process, the other on legal and financial
26 issues. We participated in the ACRS' public workshop
27 last June on advance reactors. We provide the public

1 opportunity to comment at all our meetings so that we
2 can find some of the issues that are being raised early.
3 And as I discussed before, we plan on conducting
4 meetings in the vicinity of sites designated for early
5 site permits to let the local populous understand our
6 process.

7 We're continuing to work with industry,
8 certainly in the workshops that I discussed above, plus
9 in meetings on early site permits, the ITAAC
10 implementation process, pre-application reviews and
11 design certification review. We're continuing to keep
12 the ACRS informed of our activities. We've had four
13 briefings with them of the full Committee during the
14 last year, and we'll continue to keep them informed of
15 the activities and staff positions as we move forward.
16 In fact, Tom Kress handed me a proposal for how we're
17 going to interact with them in the next year or so, so
18 it helps to have some contacts over there.

19 We've also worked within the NRC. We
20 provided an internal workshop last July, again, to
21 inform our staff of the Part 52 process, a lot of them
22 were never involved in this previously, and to give them
23 a flavor of the type of plants that are coming in.
24 We've also gone out to the regions to discuss our
25 program with our regional counterparts. We're keeping
26 informed of DOE's near-term deployment activities.
27 We're working with them on interagency funding

1 agreements and are trying to coordinate our research
2 activities with them, especially in the area of nuclear
3 fuel. We'll also be working with FEMA when we get to
4 working on the emergency preparedness reviews for early
5 site permits.

6 We've had several overseas visits that
7 focused on high temperature gas reactor issues. The
8 staff went to Germany, Japan, China, South Africa and
9 the United Kingdom to try and understand the work that's
10 being done there. And we're exploring areas where we
11 can leverage the research activities of our
12 international counterparts. Go to my last slide.

13 As Sam discussed before, we need good
14 information from the industry so that we can effectively
15 plan and schedule our workload. As the last several
16 months have shown, this is a very dynamic situation.
17 The Exelon decision on PBMR has had a large impact on
18 the resources we had planned for the combined license
19 review in fiscal year 2004. Having three simultaneous
20 early site permit reviews going on at the same time will
21 present a challenge with us. In our original readiness
22 assessment, we had indicated a 30-month schedule that
23 used the license renewal review as a model. However,
24 that model that assumed that there were no resource
25 constraints or conflicts with other high priority
26 reviews and that the first application would come in
27 substantially before the second so that we would have

1 some time to get accustomed to the review. We also
2 assumed that there would be limited hearing activity.
3 Now that we know that the three applications are coming
4 in within three months of each other, we've taken a step
5 back, we're developing an integrated schedule to
6 determine how we can meet our projected 30-month
7 schedule, factoring in especially the environmental
8 reviews that are going on in license renewal and in
9 power uprates and coming up with a good plan. And as we
10 discussed with our stakeholders yesterday, we plan on
11 working with them on that plan throughout the summer to
12 come up with a good plan on how we can do this.

13 Other things that have gone on after Exelon
14 told us on April 16 that they were withdrawing from
15 PBMR, two days later General Electric submitted a
16 request to start a pre-application review on their
17 ESBWR, which is a 1380 megawatt electric boiling water
18 reactor that incorporates passive safety features. We
19 had done some review on their original SBWR earlier in
20 the 1990s, and we hope to build on that review as we
21 start this pre-application review. They're looking for
22 a 12-month pre-application review. We're going to meet
23 with them later on in June, and we expect to reach
24 agreement on the scope and schedule of that pre-
25 application review later this summer. The design
26 certification application could then come in after the
27 completion of that pre-application review.

1 In March, we met with Framatome on SWR
2 1000, which is a 1000 megawatt electric boiling water
3 reactor that also incorporates passive safety features.
4 Framatome has indicated to us that they may request the
5 pre-application review of their design to begin early in
6 calendar year of 2003. We are planning on meeting with
7 them again in August.

8 For the GT-MHR, in their February letter,
9 General Atomics had said that they were seeking a
10 sponsor for their GT-MHR design but in recent meetings
11 we have seen that they are now getting industry support
12 to continue their project.

13 As the industry's plans change and new
14 projects are presented or current projects are canceled
15 or delayed, the staff will be using the planning,
16 budgeting and performance monitoring process to
17 prioritize the work and allocate resources to integrate
18 the new reactor licensing activities into the overall
19 NRC budget.

20 With that, I thank you for the opportunity
21 to provide the status of the new reactor licensing
22 activities, and I'll now turn it over to Farouk Eltawila
23 who will discuss technical and policy issues we are
24 working on and when we expect to engage the Commission.

25 DR. ELTAWILA: Thanks, Jim. Good morning.
26 Slide 15, please, has an outline of my presentation on
27 the key technical and policy issues for advance

1 reactors. I'm going to start with the issue for light
2 water reactor, followed by the gas cooled reactor and
3 then our proposal to develop a risk-informed,
4 performance-based regulatory infrastructure to deal with
5 advance reactor like gas cooled reactor. And then I
6 will conclude with a list of the people that we are
7 going to provide to the Commission to engage your
8 guidance on some of the policy issues.

9 Slide 16, as Jim indicated, that we have
10 completed the pre-application review of the AP1000. As
11 a result of that review, we have concluded that the
12 AP600 test and analysis are equally applicable to
13 AP1000, except for one phenomena, and this is called the
14 entrainment phenomena, and just puts in perspective if
15 you have an AP600 after a small break LOCA, the water
16 level or the two-phase flow will drop but remain above
17 the core. For the higher power plants, the water level
18 will still remain above the core but at much lower level
19 than the AP600. So when you open for the ADS for the
20 automatic depressurization system, we won't be sure that
21 you don't move more water than you need to uncover the
22 core. So that's what's the issue that we are addressing
23 right now.

24 DOE, in collaboration with NRC, is
25 conducting a test program at the Oregon State
26 University, the APEX facility, which was used for the
27 AP600 and has been upgraded to the AP1000. After DOE

1 finishes its work, we are planning to conduct our own
2 research program. The area we are interested in, the
3 effect of thermalhydraulic uncertainty under the
4 liability of passive system. Can these changes in
5 thermalhydraulic affect the activation of the different
6 systems?

7 The way we go through that issue during the
8 AP600, and it was really recognized as very good piece
9 of work by the ACRS, is that we start challenging the
10 system beyond its design capability. So we delayed the
11 activation of the ADS system, we delay injection of
12 water, we degraded the water flow, and we assumed more
13 than a single failure. Out of the four ADS valve, we
14 assumed three of them failed. And in every case, we
15 found there is a substantial margin to safety, and that
16 helped us to ascertain that the design is robust. We
17 are planning to do a similar set of tests for the AP1000
18 to have the same level of assurance. So that's the part
19 what we call beyond design basis test at the APEX
20 facility and that program will start in October of this
21 year.

22 Slide 17 is dealing with the GE ESBWR and
23 the Framatome SWR 1000, and these two designs are
24 building on existing light water reactor technology, so
25 our design basis accident and acceptance criteria are
26 well-established and we don't see any major area here
27 that will require extensive resources. In the severe

1 accident requirement, also we understand the phenomena
2 with severe accident. We have seen some of the proposed
3 design feature, and we are confident that we can review
4 this issue. So there are no major technical issues, but
5 I would like to touch on a couple of them in the next
6 viewgraph.

7 On Slide 18, the ESBRW and the SWR are
8 similar to the AP600 and the AP1000. They rely on
9 passive components to deal with accident. So as such,
10 the same issue about passive system reliability and the
11 issue of uncertainty in thermalhydraulic and the effect
12 on the system reliability are the same issue. And the
13 way we are planning to deal with, we are going to be
14 dealing with them the same way we have dealt with them
15 for AP600 and what we are doing now for the AP1000. So
16 we are going to challenge the system and look at
17 different opportunities to have multiple failures and
18 see what is the margin to safety for this design.

19 On Slide 19, again, this design is for a
20 new plant design similar to the AP600 and AP1000. It
21 has some feature to cope with severe accident. One of
22 the features is the in-vessel melt retention by which
23 that the cooled reactor lower head of the reactor vessel
24 by external flooding so they can cool it and retain most
25 of the material inside the vessel so that you will not
26 have the other phenomena that happened in the

1 containment. So all four designs -- AP600, AP1000 ESBWR
2 and SWR 1000 -- have this design feature.

3 At the time we reviewed the AP600, there
4 was not enough data to confirm the hypothesis that
5 external cooling will retain the molten material inside
6 the reactor. So although the design feature is there,
7 NRC did not give them credit for that capability. Since
8 then we have completed two test programs, the Rospolov
9 Program and the Maska Test Program. Both of them are
10 run in Russia as part of international agreement. And
11 we get data from this program. The data says, yes, that
12 you can indeed cool the lower head of the smaller plants
13 like the AP600. For low power density, low power
14 plants, you can retain the molten material in the lower
15 head. However, if you go above that, the data is not
16 very conclusive. As a result of that, DOE is proposing
17 a test program at the University of California-Santa
18 Barbara to extend the information that came from the
19 Rospolov and Maska program to high power reactor like
20 the AP1000. We are going to be following on this
21 activity as we see results coming from DOE.

22 As a second layer toward defense in that
23 all these designs also have the capability to flood
24 either the drywell or the containment and add water on
25 the top of the debris. That has three benefits. One of
26 them, a scrub-deficient product so a deficient product
27 release, even if the containment fail will be much lower

1 than if you don't scrub it. Second beneficial effect,
2 it will slow down the core complete interaction so you
3 don't get a release of large amount of non-condensable
4 gas that can fill the containment early. And it
5 eventually will quench debris.

6 The reason I'm saying eventually because
7 unfortunately our test program at the Mase melt attack
8 and coolability experiment that was sponsored NRC, EPRI,
9 DOE and international community have been inclusive due
10 to the technical difficulty in running the experiment.
11 But we know that eventually it's a heat balance between
12 the amount of heat that's generated versus the amount of
13 heat -- but we have tried to overcome the experimental
14 difficulty to be able to prove that.

15 So we started a new program called molten
16 core concrete interaction that's sponsored NRC, DOE and
17 the international community under the auspices of NEI.
18 And the program starts this year and is going to be
19 about four years before we can get all the information
20 out of this program.

21 Our plan for the -- I'm sorry, slide 20.
22 Our plan for the ESBWR and SWR 1000 is similar to what
23 we have been doing for the AP1000. As Jim indicated, we
24 have done work on ESBWR and we've built a PUMA facility
25 at Purdue University at 600 megawatt electric, 670. And
26 we have collected information from that facility. If GE
27 decided to go beyond the initial state of pre-

1 application review and go to COL, we will need to
2 upgrade the PUMA facility to the higher power level, run
3 some experiments and develop input model to be able to
4 do confirmatory analysis. As part of the pre-
5 application review, we plan to look at the scaling
6 analysis, we look at the experimental data, and we work
7 with NRR about seeing the applicability of all the tests
8 that were run by GE and Framatome to support their
9 application.

10 I'd like to switch now to the gas cooled
11 reactor in Slide 21. And we have been working over the
12 past year with Exelon and other stakeholders, and we
13 interacted with a lot of national and international
14 groups about the issue of gas cooled reactors. We
15 believe right now that there are -- we have enough
16 information to come to the Commission on advice on key
17 policy issues. These policy issues are vital to
18 viability of this design, because they are very
19 important to the cost control and the safety of this
20 plant. So we are planning to come to you in June with
21 information about the five policy issues. It's the use
22 of probabilistic assessment in the selection of the
23 design basis event and the classification of system and
24 component, the issue of fuel performance testing and the
25 qualification and what role the beyond design basis
26 testing will play into the licensing process, the issue
27 of source term. The advance reactor of the gas cooled

1 type are relying on plant-specific source term rather
2 than the prescribed 14844 or NUREG 1465 source term. So
3 they won't use a plant-specific source term so that,
4 again, that's a policy issue that we'd like to get your
5 insight on that.

6 Continuing on Page 22, the remaining two
7 issues are the containment performance and emergency
8 evacuation and what roles these two barriers play for
9 designs that have very small efficient product release.
10 As you can see, all these issues are interrelated and we
11 believe a solution of one issue is going to affect the
12 decision made on the other issues, so we'd like to deal
13 with them in an integral fashion, and that's what we are
14 proposing in the Commission paper.

15 We are meeting with the ACRS on June 6 to
16 discuss some of these issues, and then unless we hear
17 from other stakeholders -- we're planning to meet with
18 other stakeholders too and try to finalize our
19 recommendation to the Commission by the fall of 2002 and
20 submit another Commission paper with the recommendations
21 for this.

22 On Slide 23, I'd like to talk about our
23 initiative to try to develop a risk-informed,
24 performance-based regulatory guideline. Before I start
25 that, it is clear that we can use the existing framework
26 to license any plant with any technology. However, it
27 will require an exemption process, which will identify

1 additional issues, maybe additional rulemaking, and that
2 might not be the best way to utilize our effort, our
3 staff and contractor and so on.

4 So we are proposing to develop a
5 performance -- risk-informed, performance-based
6 regulatory framework, and it can be generic that can
7 apply to any reactor design, including all the G4
8 reactor that's proposed by DOE, including the gas cooled
9 reactor. It can be design-specific for a specific plant
10 like gas cooled reactor GT-MHR or similar plant, like
11 all gas cooled reactor, PBMR, GT-MHR. It can be a
12 combination of the above. We believe if we develop that
13 program, the Agency will make its requirement
14 transparent to the designers so they can incorporate
15 this information in their design at the early stage
16 rather than during the review process when you try to
17 identify exemption and new rules which can result into a
18 backfit of the plant. So it is an important issue, but,
19 again, I want to emphasize that we can use the existing
20 process. If we have a gas cooled reactor right now, we
21 can use the existing framework.

22 On Slide 24, regardless of the framework
23 that we are going to use, whether the existing one or
24 the future one, we believe that the Core Damage
25 Frequency and the Large Early Release Frequency, which
26 were developed for light water reactor, are not
27 applicable to gas cooled reactor. For example, the

1 definition of Core Damage Frequency for light water
2 reactor is when the peak temperature is exceeded or when
3 the water level drops below the top of the active fuel.
4 For a design like the PBMR, the fuels can withstand very
5 high temperature, up to 1600 degrees for high for a long
6 period of time. So heat challenges to the gas cooled
7 reactor is not a significant one, so we really need to
8 look at different definitions for gas cooled reactors.

9 On the other hand, if you look at the
10 fission product again, gas cooled reactor will release
11 very limited fission product at very high temperature.
12 But if you have defective fuel and it releases fission
13 product during normal plant operation, this fission
14 product can be deposited on surface, it can airborne
15 with the carbon dust, it can be absorbed by the graphite
16 itself. During a pressurization effect, all these
17 fission products can be resuspended and released, so we
18 have not deal with issue like that. So the definition
19 of LERF does not apply here again. So that's why
20 regardless of the option, whether new regulatory
21 framework or existing framework, we have to develop a
22 new acceptance criteria for the gas cooled reactor.

23 Slide 25, to help the Commission with the
24 policy issue that I discussed earlier, we are going to
25 provide a separate memorandum to the Commission
26 discussing some of the technical issues and we chose
27 shows five technical issues. I've only listed here

1 three, but we are choosing five technical issues that
2 correspond to the policy issues. For each issue, we
3 tried to identify what is the safety concern, what's the
4 data that we are seeking to get and how we are going to
5 use this information in the licensing process. This
6 paper is also due to the Commission in June of this
7 year.

8 So I would like to conclude by saying that
9 we have done enough work in the gas core reactor and we
10 are going to provide you with a list of the deliverable
11 here. The first one, in June of this year, is the
12 policy -- status of the policy issue and technical
13 issue. And as Jim indicated, as part of the risk-
14 informed regulation implementation plan, which is coming
15 to you June this year, we are going to identify our
16 process of developing the risk-informed, performance-
17 based regulatory framework, and it can be part of an
18 existing framework that looks at the coherence of the
19 NRC regulation.

20 On Page 27, again, a Commission paper in
21 August on the modular and merchant plan. In September,
22 we have another Commission paper on the NEI petition,
23 and the final recommendation on the HTGR policy in the
24 fall of 2002. As I indicated -- or Jim indicated
25 earlier, we developed an advance reactor research
26 program. We had one meeting with the ACRS. We're
27 planning to have another meeting in July of this year,

1 and then we'll work with NRR and NMSS about finalizing
2 this plan, and we'll be sending it to the Commission in
3 the fall of this year.

4 So that concludes my presentation.

5 DR. PAPERIELLO: That concludes the staff's
6 presentation.

7 COMMISSIONER DICUS: Okay. Well, I'd like
8 to thank the staff for your presentation and
9 enlightening us on some of these things. I was relieved
10 when we got to Slide 27, not only because I'm beginning
11 to run out of time but I was looking at Slide 26
12 thinking we commissioners are going to have an extremely
13 busy June. So when we got to Slide 27, at least some of
14 these papers are coming in in the fall, and I appreciate
15 that.

16 As I mentioned in my opening statement, I
17 do have several questions, but unfortunately I do need
18 to leave the building shortly, so I won't go into them.
19 I will submit them for written response and as a matter
20 of record for this briefing and certainly with copies to
21 my colleagues on the Commission on what those issues
22 are.

23 Again, thank you, staff, very much, and at
24 this point, I shall be turning the gavel over to
25 Commissioner Diaz.

1 COMMISSIONER DIAZ: Thank you, Commissioner
2 Dicus. Welcome again. I don't know what order that we
3 have. Anybody keeps track of the order?

4 COMMISSIONER DICUS: I don't know what the
5 order was.

6 COMMISSIONER DIAZ: I don't know the order
7 either. All right. It doesn't matter that much. Well,
8 let me take a crack it then so that we can get going.
9 Again, thank you, and that was very interesting. I see
10 that we have a few things coming our way, and I'm very
11 happy to know that.

12 Off the top, and starting from the end, it
13 seems like all of these things are coming, and I heard a
14 moment ago one of the things that I personally like very
15 much was just integrating things and doing them together
16 rather than piece-wise. Decisions that will have to be
17 made on these issues, has the staff considered that some
18 of them will depend on each other, both from resources
19 considerations and how they come and how are they
20 related? Will the staff give the Commission some heads
21 up and let us know what decisions are tied in? Anybody?

22 MR. LYONS: Certainly. We'll be trying to
23 keep you informed of how everything works together.

24 COMMISSIONER DIAZ: Okay. Because that
25 certainly might be important, as so many of these issues
26 come --

1 MR. COLLINS: Commissioner Diaz, I think
2 it's important to note that some of these, as Farouk
3 indicated, have long lead times because they are product
4 lines that are not formally endorsed yet by the industry
5 or other stakeholders. Whereas some of them perhaps
6 will be more integrated decisions because they support
7 product lines. Therefore, we'll have -- a schedule will
8 be developed by Jim in concert with research in order to
9 support a definite process, like ESPs or potentially the
10 AP1000 if it were to go to the COL stage.

11 MR. THADANI: Commissioner Diaz, if I may
12 just comment on that similar topic. Indeed, as Sam said
13 and Jim said, our intention is to make sure we look at
14 all these issues in some integral fashion. But in order
15 to do that, it is essential that we know what the target
16 is. And what I mean by that is if you look at the
17 Commission's advance reactor policy statement, it
18 basically says there's the expectation that the new
19 designs will be safer than the current ones. That's the
20 expectation. If you go to Part 52, under Part 52, it
21 basically says it's a process-type rule but it says you
22 should meet Part 52, look at operating experience,
23 resolve generic safety issues, both medium and high
24 priority, conduct a PRA, identify areas for improvement
25 and meet the Commission's safety goals. These are
26 pretty challenging issues if one were to go to non-light

1 water reactor technology, because it is obviously very
2 significant issue of what
3 do we mean by meet a set of regulations. Farouk talked
4 about some challenges that need to be addressed as we go
5 forward.

6 It seems to me, at the outset, in order to
7 appropriately integrate these issues, one would have to
8 have a sense of what is the level of safety, what's the
9 target? It is our intention to highlight these issues
10 in the upcoming papers, because as I said at the March
11 19 brief on research programs, I really believe it will
12 take a fair amount of intellectual capital to make sure
13 we have talked this thing through completely as we go
14 forward. So it is our intention to lay these issues
15 out, and I think the fundamental issue is going to be
16 what is our expectation?

17 COMMISSIONER DIAZ: Okay. I certainly
18 think that you're absolutely right. Now, pouncing on
19 that issue, the question comes of whether we can
20 maintain the same pace or similar paces for both the
21 graphite and the light water reactors. Can you give us
22 an idea of these parallel tracks with interactions or
23 whether they're completely separate? Because from what
24 I am hearing, and I understand they're two complete
25 different beasts and there are many, many, many
26 different issues, are we separating them in a manner
27 that from the point of conducting the work -- I know

1 that we can visualize the difference -- but from
2 conducting the work they are in independent tracks?
3 What is the -- is there some synergism between them?

4 MR. THADANI: I can certainly speak from
5 research perspective. I think we see current plans for
6 focus more and more on the non-light water reactors.
7 Certainly the high temperature gas cooled reactor was
8 where the majority of the focus was. And it's only been
9 recently, as you have heard, that the significant
10 interest has been shown by Framatome as well as GE.

11 The expectation issues for the light water
12 reactors are easier to deal with. I think many of the
13 technical issues are easier to deal with in the light
14 water reactor, as Farouk has indicated. I think it's
15 clear -- at least in my mind it's clear that for the
16 non-light water reactor there is considerable long lead
17 type of work that needs to be done. A significant part
18 of that has, in my view, and I think Farouk will support
19 this, has been done for the light water reactor
20 technology. But I think we've got to recognize where
21 we're starting from in the non-light water reactor
22 technology. And as you know, and as you've heard, there
23 are some very significant issues there, with the
24 graphite technology, the kinds of temperatures we're
25 talking about, the type of fuel and fuel kernels we're
26 talking about.

1 So if you were to look at the two, I would
2 say we have to recognize where the starting point is.
3 It's a little clearer in the case of light water reactor
4 technology. It's also clearer, I think, in terms of
5 expectations. And containment, confinement issues
6 really raise some fundamental issues of defense in-
7 depth. How do we go forward? So we are looking at the
8 issue, and we've laid out, we've indicated in some of
9 our internal discussions the kind of resources it would
10 take, the level of effort, the time line that it would
11 take for us to make sure we have developed the technical
12 basis. And I think we see that as a longer effort for
13 the gas cooled technology and a shorter effort for the
14 light water reactor technology, like ESBWR and SWR.

15 COMMISSIONER DIAZ: One comment, for the
16 record, Dr. Eltawila, when you talk about the fuel for
17 the gas cooled reactor, you said the fuel will take 1600
18 degrees fahrenheit.

19 DR. ELTAWILA: Centigrade, sorry.

20 COMMISSIONER DIAZ: And the record is
21 corrected.

22 MR. COLLINS: Commissioner, I'll let Jim
23 speak for the licensing and review process, as far as
24 your question on the pace for the reactor.

25 MR. LYONS: I think one of the things we
26 try to do is to look at what applications are in front
27 of us and which ones are coming in. We've tried to

1 separate in the pre-application reviews research as
2 taking the lead on the non-light water reactors, and NRR
3 has taken the lead on the light water reactors. But at
4 the same time, we work together to keep ourselves moving
5 together at basically the same pace.

6 But as we go through our budgeting process,
7 we're looking for product lines that are going to
8 proceed, try to give priorities to those items that look
9 like they're going forward and would lead to an ultimate
10 combined license application. Certainly, the early site
11 permit reviews take us that way, design certifications
12 take us that way. So I think that's -- we're trying to
13 prioritize the work so that we take those product lines
14 forward at a rate that would meet the industry needs.

15 MR. COLLINS: The definition of the
16 programs, to a large part, will define the schedule for
17 us. So, for example, the early site permit meeting of
18 yesterday was our first foray into defining what is
19 necessary in order for the staff to conduct a review.
20 That will be laid out into a review plan, and that
21 review plan will have a schedule and be budgeted for
22 resources. It's premature right now to lay that out in
23 front of the Commission today, but that clearly is our
24 goal, similar to what we've done for license renewal.

25 COMMISSIONER DIAZ: And since we're talking
26 about timelines and lead times, which are very important
27 from many, many respects, have the staff been able to

1 take a first estimate of the lead times that will be
2 required to complete whatever regulatory work needs to
3 be done for the advance light water reactors and for the
4 gas cooled reactors? Give me an idea of what the lead
5 times we're talking about?

6 DR. ELTAWILA: For the gas cooled reactor,
7 the lead time right now we're talking about five years
8 to be able, for example, to get the fuel and then
9 destructive testing and measure fission product and so
10 on. So as a minimum, we need five times before we can
11 have this information and put it in our code and assess
12 the codes and be able to provide the regulatory
13 guidance.

14 For the light water reactor type of all the
15 designs that we have, we really believe that the two
16 years that, for example, we are proceeding with the
17 AP1000 application, is adequate for the other, because
18 we have -- the facilities are existing, whether it is in
19 the United States or overseas, so we don't have to
20 develop new facilities. And the fuel is not a major
21 issue. The biggest two issues that driving the gas
22 cooled reactor are the fuel, the high temperature
23 material, graphite, and adaptation of our codes to be
24 able to do gas cooled reactor. We are not going to
25 develop any new codes. We are changing the codes that
26 we have to be able to do these things. So all of these
27 are taking -- that takes the longest time.

1 If I may add, we are at a very good
2 opportunity here, because the rest of the world is
3 performing gas cooled reactor research -- China, Japan
4 and European communities. And they are all interested
5 in engaging NRC, but we have to be engaged on almost
6 equal footing, that we have to provide something. And
7 if we take a leadership role in this international
8 activity, we'll be able to direct them in complementing
9 each other, rather than duplicating results. So we'd
10 like to be able to participate so we can take a range of
11 conditions and place it in Japan, another one in the
12 United States and China and so on, and exchange the
13 information so we can shorten the lead time we need to
14 collect all this information.

15 MR. THADANI: Commissioner, if I may add to
16 what Dr. Eltawila said. We've made progress in the HTGR
17 because of our interactions with Exelon, so we've got a
18 better sense of what needs to be done. The whole idea
19 behind the pre-application review is to make sure we
20 have laid out an appropriate road map and there's a
21 clear understanding about what the expectations are on
22 the two sides.

23 In the case of ESBWR and SWR 1000, of
24 course, we have not gone through that process, and we
25 will have to go through that process to make sure that
26 we have really understood what the key elements are,
27 besides this general discussion that we're having, in

1 order to be able to lay out what is it that one would
2 have to do. And we're not there as far as those designs
3 are concerned.

4 COMMISSIONER DIAZ: Okay. Thank you. I
5 think we're not going to have time to get into one of my
6 favorite issues, which is ITAAC. I'm going to let that
7 go.

8 MR. COLLINS: Oh, we could probably get
9 into that.

10 COMMISSIONER DIAZ: I have full confidence
11 that my fellow commissioners will get into it. Let me
12 just -- one thing that you said about codes, is it on
13 track?

14 DR. ELTAWILA: It is on track, and we
15 expect to have it at the end of this year as an internal
16 version for to be able to use it and assess it.

17 COMMISSIONER DIAZ: So are we coming to a
18 relatively final phase on grading these codes to be able
19 to use them? I mean I know we'll always be --

20 DR. ELTAWILA: Yes. The answer is yes, and
21 we'll always have to do changes, for example, to adopt
22 to the new technology and so on.

23 COMMISSIONER DIAZ: And last, but not
24 least, people of mine, the Commission has been saying
25 for years that we'd like to talk about risk-informed and
26 performance-based, so you will have the flexibility to
27 do one, the other or both. I keep seeing that you guys

1 keep coming with risk-informed, comma, performance-
2 based, which means it's a singular approach. If I may
3 suggest that you look back and realize that it's risk-
4 informed and performance-based that we're talking about,
5 unless we have a new regime that I don't know about. So
6 it's five years. I think by now you guys should really
7 get on it and realize what the Commission has been
8 saying. Commissioner McGaffigan?

9 COMMISSIONER MCGAFFIGAN: Thank you, Mr.
10 Chairman. I'm going to start with the early site permit
11 process. The initial three applications are all going
12 to be at sites where there's existing reactors where
13 more than the existing number of units was originally
14 thought to be placed at these sites. So they're fairly
15 well-studied. The three issues you have to look at are
16 environmental impact, site suitability and site
17 emergency plan. The site emergency plan is presumably
18 straightforward at existing sites. They'll just work
19 off of existing emergency plans and presumably describe
20 that. Why can't we get this review done in 18 to 24
21 months -- 18 months without a hearing, 24 months with a
22 hearing? Given the limited number of issues in an early
23 site permit, given the sites or existing sites, given
24 the sites are fairly well-studied, why not set an
25 aggressive schedule there?

26 MR. LYONS: I think the best way to answer
27 that is that in all these sites they originally had

1 construction permits for more than one unit, but those
2 construction permits were permits to allow them to build
3 that plant at that site. It really didn't approve the
4 site. So there wasn't a site approval process that's
5 envisioned as part of the early site permit. And so we
6 still have to go back and we do expect to be able to use
7 the data that was generated before as part of our
8 review. It has to be updated where necessary. If our
9 regulatory requirements have changed since the time that
10 they developed that data, those things might have to be
11 addressed. But we still have to do a complete
12 environmental review, complete site suitability review
13 and look at the emergency planning. And I agree with
14 you that the emergency planning should be one of the
15 easier ones to do that on. So that's part of the
16 process that we're working to develop.

17 But if you look at the environmental review
18 that was done for license renewal, which fits in within
19 the time frame that we're talking about, that really
20 only looks about a third of the environmental issues.
21 The other two-thirds were addressed generically as part
22 of the generic environmental impact statement. And
23 we're going to have to address those things in
24 individually on each one of these plants. That
25 shouldn't really stretch out the review, but it's going
26 to make the resources that we require to do that review
27 greater to address all those issues.

1 MR. COLLINS: I think we agree there will
2 be some efficiencies, we'll be looking for those. We're
3 not ready, prepared yet, I think, until all the process
4 is laid out to say exactly what that will gain in the
5 process.

6 MR. BURNS: Commissioner McGaffigan, I
7 might also point out that with respect to the ESP this
8 involves the mandatory hearing provisions of Section
9 189. Now, what that means really in implementation
10 means the nature of the contest. I mean in the '60s,
11 there were plants where there was a hearing and it was
12 basically the applicant and the staff had the hearing
13 that were, in fact, otherwise, quote, "uncontested."
14 But there is a hearing process associated with that.
15 It's just that it's really a question of what type of
16 timing either the Commission sets in its scheduling and
17 in kind of a scheduling order or the Board, depending on
18 the nature of the parties and participants.

19 COMMISSIONER MCGAFFIGAN: So a mandatory
20 hearing is required here, which puts it into the 24- to
21 27-month time frame, in my mind. I mean it strikes me
22 that -- and I'll go on, you'll see the rest of my line
23 of questioning -- the ESP applications are real. A lot
24 of the rest of this stuff that you guys are expending
25 resources on may prove illusory. I can't imagine --
26 well, I might as well just get onto it, I can't imagine
27 that we're going to build all of the above in the way of

1 modular high temperature gas reactors, SBR 1000,
2 European boiling water reactors, AP1000s, AP600s, the
3 three that we already -- the system ADPlus, et cetera.

4 At some point, in order for the economics
5 of this stuff to work, the industry is going to have to
6 get into a situation where they're building multiple
7 units, and they're going to have to settle on one or a
8 maximum of two designs, I would think, realistically.
9 And I know everybody wants to -- if I were a designer,
10 I'd want to be in the queue as a candidate for them to
11 think about. But, realistically, I think there's going
12 to be one or two.

13 It would be real helpful if the industry
14 could tell us earlier rather than later which ones
15 they're really serious about rather than expend a lot of
16 our resources on several things. And, therefore, I
17 worry about your PPDM process, because my preference
18 would be to continue to work on what I judge to be real
19 things and push back some of the stuff that maybe isn't
20 real. And maybe you're going to have to come to the
21 Commission with your PPDM changes in order for us to
22 understand what the rationale is. You're going to have
23 a large sum of money, \$25 million, if the Congress gives
24 us our request next year, to slosh around among these
25 various activities. I mean you have a plan at the
26 moment, but as you make changes within that \$25 million,
27 I think we're going to have to be able to see what --

1 those are going to have to be transparent to the
2 Commission.

3 MR. COLLINS: We would agree with that, and
4 although it's premature to indicate in any way the
5 budget that will be presented to the Commission, it does
6 contain contingencies with that type of a strategy.
7 It's hard in the licensing and review area, at least,
8 for us to commit resources to product lines that have
9 not been committed to by the industry. I think research
10 has a little different situation because of long lead
11 time, and clearly those funds are necessary, to a large
12 extent, in order for research to perform their mission.

13 COMMISSIONER MCGAFFIGAN: The long lead
14 issue gets to the -- the main reactor that you need the
15 long lead money for is the GT-MHR, as I understand your
16 response to Commissioner Diaz. At the summit last week,
17 there was -- between the President and the Russian
18 leader, Mr. Putin, there was, I thought, a fairly strong
19 indication that we were potentially going to help them
20 use their BM 800 as a plutonium burner for the Weapons
21 Plutonium Disposition Program. And that the effort
22 that's been ongoing sort of in a low-cost way in both
23 countries to look at the GT-MHR for that application may
24 have taken a bit of a hit last week. Do you have any
25 sense as to what DOE may be up to with the Russians or
26 the U.S. Government may be up to with the Russians and
27 whether the GT-MHR effort may -- the Russians have

1 always wanted to do it with the BM 800 -- whether this
2 is adverse to General Atomics, what happened last week
3 in Moscow?

4 MR. THADANI: I can't address the fallout
5 from that discussion of last week. I did talk to DOE as
6 recently as yesterday. I talked to Bill Magwood, and
7 his comments to me were basically twofold, and it may be
8 a question you might want to ask the next panel as well.

9 COMMISSIONER McGAFFIGAN: I intend to.

10 MR. THADANI: His comments were twofold.
11 He said HTGR technology is very, very important for the
12 country, was number one. Number two was he thought it
13 was important to move forward, particularly in the area
14 of fuel, because, as we've been saying, that is probably
15 the long -- really the tough long lead item. And that
16 he thought that we may get -- the picture may clear a
17 bit come September/October time frame. That was about
18 the best intelligence I could get from him.

19 COMMISSIONER McGAFFIGAN: Well, I think
20 we're going to -- as you all said in one of your slides,
21 it's a very uncertain environment for these various
22 designs, and we're just going to have to adjust. But to
23 simultaneously have all these design certifications
24 underway we probably are, realistically, unless Congress
25 wants to appropriate us a lot of money and the industry
26 wants to pay all the fees associated with all that
27 money, it would be nice to sort out where -- which of

1 these are real and which aren't. And it's my ingoing
2 position, presumption is that they're not all real.

3 DR. ELTAWILA: Commissioner McGaffigan, if
4 I may add to what Ashok said. The impact on GT-MHR in
5 this country might be significant because GE indicated
6 that they are going to rely on a lot of tests that's
7 going to be done in Russia to support the certification
8 here in this country. So if these tests are not going
9 to be done in Russia, then they will have to do it
10 somewhere else.

11 COMMISSIONER MCGAFFIGAN: Well, I may be
12 reading more into the summit statements than is
13 appropriate, but I saw a clear signal that we were going
14 to be willing to work with the Russians on what their
15 preferred course has been all along. And if that is the
16 Administration's position, then I think it could be
17 adverse.

18 The last issue, I don't want to disappoint
19 Commissioner Diaz on ITAAC, but I also don't want to
20 take too much time, the Programmatic ITAAC, which
21 programs -- again, if the three sites prove to be the
22 sites where we some day get a call application, they
23 already have programs for the existing reactors at those
24 sites. If we want acceptance criteria for programs,
25 which programs are we going to have acceptance criteria
26 for? Is it all programs?

27 MR. LYONS: No, not all programs.

1 COMMISSIONER McGAFFIGAN: Okay. So it
2 isn't all programs. Which programs?

3 MR. LYONS: We're going to have programs
4 that we were not able to make a final finding at the
5 combined license stage. Obviously, if somebody had a
6 program that was in place and operating and we can make
7 that finding at the combined license stage, then we
8 could make that finding without an ITAAC or a very
9 simple ITAAC.

10 COMMISSIONER McGAFFIGAN: You don't mess up
11 during the construction period --

12 MR. LYONS: Right.

13 COMMISSIONER McGAFFIGAN: -- in running
14 your maintenance program or something.

15 MR. LYONS: And so one of the things we
16 want to work with industry on is to define those
17 programs that we would see the need for Programmatic
18 ITAAC on. But it kind of depends on information that
19 they supply and the programs that they have in place at
20 the time they come in for a combined license. And so
21 that's when we would see us working through that
22 process, similar to what we did with the design
23 certification process when we developed the ITAAC for
24 them. We had a process by which the industry proposed
25 ITAAC, we worked with them, we interacted with them to
26 come to a set of ITAAC that we agreed on. And there was
27 a lot of give and take during those sessions. We spent

1 weeks at General Electric in all-day meetings, in break-
2 out sessions on various issues and then coming back and
3 presenting the findings. It's not going to be easy to
4 develop the Programmatic ITAAC, but I think we can do it
5 and provide objective, or as objective as possible,
6 ITAAC or acceptance criteria that would help the
7 Commission make its decision at the time of fuel load to
8 make that decision to allow fuel load.

9 COMMISSIONER MCGAFFIGAN: I probably have
10 teed it up for Commissioner Merrifield, so I'll let him
11 continue, since he promised he was going to get into
12 ITAAC as well. I really am interested in which
13 programs, and I guess you're saying it's going to take a
14 long process to figure out which programs and what the
15 acceptance criteria will be.

16 MR. LYONS: We listed several programs -- a
17 number of programs in our paper. In those --

18 MR. BURNS: Excuse me, on Page 13 of the
19 Appendix, associated with SECY-02-0067, they list
20 emergency planning, quality assurance, radiation
21 protection, fitness for duty, license to operate a
22 program, containment leak rate test program, in-service
23 inspection, physical security, fire protection, access
24 authorization, training program, reportability program,
25 maintenance rule and equipment qualifications. So
26 that's --

1 COMMISSIONER McGAFFIGAN: That's their
2 current thought.

3 MR. BURNS: Well, reconsideration include
4 the following. That's what the paper says.

5 COMMISSIONER McGAFFIGAN: Included. It's
6 the "include the following" that that's not --

7 MR. BURNS: It's not an exclude. I will
8 tell you as a lawyer it could be more.

9 COMMISSIONER McGAFFIGAN: Coming
10 attractions, right.

11 MR. COLLINS: I think it's important to
12 acknowledge that the staff is proposing this approach,
13 and it's up for Commission decision --

14 COMMISSIONER McGAFFIGAN: Right.

15 MR. COLLINS: -- in order to preclude the
16 Commission being in a position where the construction
17 and design ITAACs are complete and there is an
18 obligation to issue the fuel load without the programs
19 being verified. And at that point, if there's not a
20 Programmatic ITAAC, then our options are to revert back
21 to the classic enforcement scheme wherein we would issue
22 an order or we'd have a 2.790 or we'd have some other
23 type of methodology by which we would feel it necessary
24 to invoke enforcement to confirm that the programs are
25 appropriate. Programmatic ITAACs preclude that. So
26 there is -- being that they're defined, being that
27 they're met, being that that takes place during the

1 course of the construction of the facility, then that
2 judgment is passed and we go through the process of
3 conclusion of those before the construction is
4 completed. It's worthy of discussion perhaps --

5 COMMISSIONER DIAZ: I'm sorry, I voted
6 several years ago against Programmatic ITAACs, and I'm
7 enjoying this discussion right now.

8 MR. COLLINS: We're trying to enlighten you
9 since that time.

10 MR. LYONS: We may have failed.

11 COMMISSIONER MERRIFIELD: Well, I'm not
12 ready to say that yet, but I want to understand. I mean
13 having given the list that is on there, which is
14 admittedly quite extensive, and saying that that is an
15 inclusive list, not an exclusive list, so there are
16 others that could be included, what are you proposing as
17 the criteria that you would use to say, "Well, this is
18 in or this is out or we need this at all"? I'm just
19 trying to get a sense of the thought process that the
20 staff is using to determine this list and others that
21 may or may not be included.

22 MR. LYONS: The criteria that we would use,
23 and let me address the list, first of all. I guess you
24 all are reading it different than when we put it down.
25 We were saying we're considering these. We're not saying
26 that all of these would be included. And, in fact, as
27 we look through here, there are some of these that I

1 could say almost categorically wouldn't, such as
2 Equipment Qualification Program. In fact, in the ITAAC
3 that we have --

4 COMMISSIONER MERRIFIELD: But you say that,
5 "Under consideration including the following." That
6 means what it means. You've listed them. These are
7 those --

8 MR. LYONS: Right. We're considering.

9 COMMISSIONER MERRIFIELD: -- that you
10 consider at this point.

11 MR. LYONS: But we're not -- but we also --

12 COMMISSIONER MERRIFIELD: Well, it's in the
13 dictionary, but I mean you've listed --

14 MR. LYONS: You just took one off the list.

15 (Laughter.)

16 But the criteria that we would look at
17 going back to the regulations and the necessary and
18 sufficient and those programs that we felt we needed to
19 verify were in place prior to the loading of fuel and
20 those items that in those programs -- that would be
21 within those programs that we felt needed to be verified
22 prior to making a finding. So it wouldn't be even the
23 whole program, it would be those parts of the program
24 that we felt were particularly important to identify and
25 to verify prior to the authorization to load fuel.

26 COMMISSIONER MERRIFIELD: Okay. Well, now
27 having said that, and that's a fair answer, how do --

1 having made that determination and say, "Well, it's not
2 every element, it's certain elements that we would need
3 before fuel loading," how do you limit the subjectivity
4 process so that you've got disciplined objectivity when
5 you're determining whether the acceptance criteria have
6 been met? You're saying, "We're going to pick and
7 choose elements of these we feel are necessary before
8 fuel loading," but if we go down that road that you're
9 suggesting, how do we avoid, on one side or the other,
10 the suggestion that we're being subjective and
11 undisciplined in our approach to making that kind of a
12 determination?

13 MR. LYONS: I guess the way I would say
14 that is similar to what we did with the design
15 certification ITAAC. We would have -- the industry
16 would have proposed the ITAAC that they felt were
17 necessary and that we would work with them and we would
18 try to work out to be as objective as possible so that
19 we didn't have subjective ITAAC to the extent that we
20 can avoid it. There's always some subjectivity in some
21 of these ITAAC, even in the ones that we agreed upon for
22 the design certification for some of the reviews -- some
23 of the issues that were addressed there. But what we're
24 trying to do is to work with industry to come up with
25 those ITAAC that would define that and make it so that
26 they would know exactly what they needed to meet in
27 order to have that program found acceptable.

1 MR. COLLINS: The alternative is important.
2 The alternative, if I understand it correctly, is that
3 the programs are described in the submittal by the
4 licensee for the safety analysis, and we inspect to
5 that, which also has some business risk for the industry
6 and some regulatory risk for us as far as defining how
7 much is enough, what type of inspections are done, when
8 they're done and what acceptance criteria you're
9 expecting to. So the Programmatic ITAACs are actually a
10 level above the definition that would be normally
11 provided if we were to just inspect. And it's agreed
12 upon ahead of time, and it's verified.

13 COMMISSIONER MERRIFIELD: This is an
14 interesting topic, and I'm certain to further explore as
15 we go forward. For the sake of clarity, I intend on
16 asking similarly hard questions of our next panel to
17 give them fair warning.

18 I want to touch back on an area that both
19 Commissioner McGaffigan and Commissioner Diaz have
20 alluded to, and that's the issue of scheduling. On Page
21 14 in the slides, you mention here the various things
22 that we have before us or potentially before us on
23 uncertainties. I would add to that, not to make your
24 burden even greater, there is some possibility and some
25 consideration of our friends from Atomic Energy of
26 Canada wanting to bring a "can do" design down here as
27 well for this consideration, from what I'm hearing.

1 Now, all of that having been said, I
2 understand where Commissioner McGaffigan is coming from:
3 Gee, you want to work on those things that are most
4 likely to actually potentially materialize, but
5 certainly the ESP reviews we have before us right now.
6 It strikes me that there's a tension, however, and that
7 is as a regulatory agency, we are to be agnosticant in
8 the matter of designs. We are to make a determination
9 whether we find them safe or not.

10 Now, in other areas, the staff, I think,
11 has done a commendable job, particularly with our
12 licensing renewal program, and we have things lined up,
13 and there's an appropriate match between the timing and
14 between the staff resources necessary to make those
15 reviews. I think, increasingly, there is a greater
16 alignment with the power uprate program where we have
17 more alignment in terms of understanding where it's
18 coming from. Clearly, this is an area where there's a
19 lot of work to be done, and I agree with the two
20 commissioners who've spoken previously. I think it's
21 going to require perhaps greater involvement on the part
22 of the Commission to help you funnel that work so that
23 it can be done in an appropriate manner, somewhat along
24 the lines of what Commissioner McGaffigan says, "Gee,
25 let's focus on those things which have the greatest
26 likelihood of actually materializing down the road."

1 There's not a significant question that
2 comes out of that besides to let you know where I'm
3 coming from. I would say as an attendant issue, timing
4 -- obviously, we're working with the Oregon -- the APEX
5 reactor to deal with the gas cooled issues. The PUMA
6 facility for Purdue is one we'll have to time as well.
7 So this issue does have its overlap in research, and I
8 think continued interactions is necessary there as well
9 to make sure we get the resources necessary to make it
10 all work.

11 MR. COLLINS: Commissioner, that's clearly
12 our goal, just to respond to your comment. The offices
13 are aligned in providing resources that are appropriate
14 to meet the Commission mandate, and that Commission
15 mandate is that the Commission is not an impediment to
16 the application of technology or the licensing of a site
17 or a technology on a site. And that is our focus.
18 There is a lot of uncertainty in where and when and what
19 is going to lead to those decisions, and that really is
20 where we need to support the stakeholders and the
21 Commission in order to focus those efforts. Clearly,
22 we're not able to do everything. There's a lot of
23 speculation out there about what is going to mature to a
24 product line, and we have three applications now that
25 are a reality, and we need to move down the road in
26 concert with our partners in research to provide for the

1 next step should it be put in front of us as a
2 challenge. But that's our goal is to reach that.

3 COMMISSIONER MERRIFIELD: Well, it raises
4 the possibility and the question for the Commission to
5 consider, and that is we may have to form a queue. We
6 may not be able to do things in the timeline that the
7 applicants would like, simply as a function of the
8 resources we have available.

9 Couple of questions real quick, and then we
10 should get to the next panel. Mr. Eltawila, you
11 mentioned in terms of gas technologies, that the NRC is
12 looking to create a, I think you said, a leadership role
13 in certain activities in the international arena so we
14 could have our part that we can contribute
15 internationally. Do you have any recognition or
16 understanding right now what might be an area we could
17 carve out in terms of expertise in this field?

18 DR. ELTAWILA: Our area of expertise would
19 be definitely in the risk-informed, performance-based
20 regulatory framework. The European Commission are
21 interested in that, and they want to cooperate with us
22 in this area. The other area that we can carve our
23 relationship role would be in development. Our tools
24 are the best. The experimental program, we can provide
25 information for light water reactor, but for the gas
26 cooled reactor, most of the experimental data will be

1 coming from -- they are one step ahead of us in the fuel
2 and the graphite area.

3 COMMISSIONER MERRIFIELD: Well, I think
4 that's building on our high levels of expertise in the
5 areas you mentioned. I think it makes a lot of sense.
6 Clearly, as we have more enhanced international efforts,
7 I think building on those relationships and taking
8 advantage makes sense. This clearly, seems to me, to be
9 a pilot program in the future for moving forward
10 internationally with our international collaborators.

11 Last question, in the meeting we had last
12 year, we talked about the challenges in obtaining
13 personnel with the appropriate skills that could be
14 involved in the review of these new license designs, and
15 I would like Sam and Ashok, in particular, to briefly,
16 very briefly, talk about progress you've made in this
17 area.

18 MR. THADANI: Okay. I'm happy to report
19 that we made, I think, considerable progress in the area
20 of getting talent on high temperature materials area.
21 We've got some new staff with good background and
22 experience. We reached agreement with NII, and, as you
23 know, Commissioner Merrifield, that we'll be sending a
24 staff member with --

25 COMMISSIONER MERRIFIELD: Our UK
26 counterpart, for those who aren't familiar.

1 MR. THADANI: Yes. I don't know if I had
2 told you this, but we do have a staff member now at
3 Research who has a fair amount of background in graphite
4 technology. So that's been a success. We just want to
5 bring this person up to date in terms of what's really
6 happening with the current evaluation that UK is
7 conducting.

8 COMMISSIONER MERRIFIELD: So the bottom
9 line is that you have reduced the gap between the needs
10 and the skills.

11 MR. THADANI: Right. Now, I think the area
12 that still needs attention is the fuels area still needs
13 some attention, I think.

14 COMMISSIONER MERRIFIELD: Sam?

15 MR. COLLINS: Thank you. We have
16 challenges also. I think we've made some progress,
17 particularly in staffing Jim's organization for new
18 licensing. As was indicated an issue in my opening
19 remarks, that's an exciting area and people gravitate to
20 that. We do need experienced people there, as we are
21 going through a licensing process that requires mature
22 judgment and some background. So people have tended to
23 gravitate to those program and process positions, and I
24 think we can be proud of the team. There are holes
25 where they have been, and we're continuing to fill
26 those. We have a fairly aggressive hiring program that
27 has success with new hires, entry levels and interns,

1 less success with mature workers, if you will, that can
2 come in at the upper grades. There's many challenges,
3 and I think the Commission is going to have a meeting in
4 June to talk about human capital, and we can get into
5 the details there.

6 Technically, our challenges, as Jim would
7 indicate to me, and he can elaborate, are in the ologist
8 and urgists, if you will, the people who are necessary
9 for us to provide for the early site permits and some of
10 the structural areas which we have not been making
11 regulatory decisions in a large way in the past ten to
12 15 years, as well as in the environmental area, and
13 we're continuing to work on those challenges.

14 COMMISSIONER MERRIFIELD: Thank you. Thank
15 you, Mr. Chairman.

16 COMMISSIONER MCGAFFIGAN: Mr. Chairman,
17 could I just ask one -- I think it would be a quick
18 question and a quick answer. The fees we get to pay for
19 this program at the moment, could you just briefly
20 outline who pays? Are we collecting any Part 170 fees
21 from anybody? Presumably, Westinghouse now that they've
22 gotten to the stage where there's a design certification
23 they're paying fees, 170 fees. But all this pre-
24 application stuff, almost all of it, including the
25 research related to the pre-application stuff, is done
26 out of 171 fees; is that correct?

1 MR. LYONS: Not really, no. We put in
2 place project numbers for the pre-application reviews,
3 and we charge Part 170 fees for the part of the pre-
4 application review that's specific to the design. If
5 there's areas that are more generic in nature that we're
6 addressing through the pre-application review, those
7 would then be in the Part 171 fee structure. But for
8 those plant-specific issues, we are collecting Part 170
9 fees. We had a discussion with the early site permit
10 applicants yesterday about fees, and maybe they'll want
11 to address that some more, but they're looking for some
12 relief in the fees areas as being the first wave of
13 applicants that are coming in.

14 COMMISSIONER MCGAFFIGAN: I thought DOE was
15 paying half their costs. Okay, whatever.

16 MR. LYONS: Ask them.

17 COMMISSIONER DIAZ: All right. Thank you
18 very much. I think we see that at least these three
19 commissioners are very concerned that the combined
20 license process be fair, equitable, clear and
21 predictable and also transparent to our stakeholders.
22 So that's one of the things that we're really very
23 concerned with.

24 And a final comment, I think there is
25 obviously a tug of war in hearing what goes first. I
26 think we need to do things that needs to be done first
27 first. Isn't that a profound statement? But there is

1 no doubt that we also need to be looking at the future,
2 and therefore at some efforts that will continue in that
3 regard are fine.

4 And we thank the staff and we have our next
5 panel coming and move in and we'll try to get on with a
6 prompt discussion of the issues on the second panel.
7 Thank you.

8 Well, we need to -- we're a little late, so
9 we're going to need to be moving on. Welcome, second
10 panel. Dr. Kress, ACRS; Marv Fertel from NEI; Jim
11 Riccio, Greenpeace; and Mr. Grecheck of Dominion. We'll
12 start right on. Dr. Kress, please.

13 DR. KRESS: Thank you, Commissioner Diaz.
14 We might as well start with the slides. I am going to
15 make some comments on the new reactor licensing
16 activities. I want to stress that these are not ACRS
17 views; they're my own personal views. The ACRS has not
18 passed judgment on these, and we have no official
19 position.

20 That said, on my second set of slides, my
21 views, although they are my own, have been somewhat
22 contaminated by activities of the ACRS. I am the
23 Subcommittee Chairman of the Advance Reactor
24 Subcommittee, and we have had some activities there.
25 And as Jim Lyons noted, we're coordinating our
26 activities with the staff to be sure we can accommodate
27 their needs for ACRS reviews.

1 The advance reactor licensing was a major
2 topic of discussion at our last retreat. I led that
3 discussion myself, and two members of the ACRS did
4 attend the staff's workshop on high temperature gas
5 cooled reactor safety and research issues. That may be,
6 in part, why I'm here today.

7 My views I want to express today are that I
8 think the new design technology reactors are quite good,
9 some of them, and they do have the potential for an
10 increased level of safety and better economics, and I
11 think they are immanently certifiable.

12 This certification, ACRS believes -- very
13 much like I think we heard one of the earlier speakers
14 say -- there are possibly two routes that they could
15 take. One is the PBMR example in which they try to fit
16 into the current regulatory structure but with
17 exemptions and risk-informed modifications.

18 I believe that AP1000, IRIS, and each of
19 the gas-cooled reactors, and the other lightwater
20 reactor concepts -- EES, BWR, and SWR1000 -- probably
21 will go that route because it seems to be the route that
22 is the easiest for them to fit into.

23 Some of the concepts might find it
24 advantageous to wait for a complete recrafting of the
25 regulatory system to be risk-informed and technology
26 neutral. Regardless of which of these routes that are
27 chosen by the applicants, I think there are a number of

1 technical and policy issues that will have to be faced.
2 And I did want to talk about three of these -- two of
3 them, really.

4 I think in doing a risk-informed review of
5 these, or risk-informed modifications to our
6 regulations, we have tended to focus on CDF and LERF as
7 our risk acceptance metrics. I think those are very
8 good -- a good start. But I think they are basically
9 insufficient. They're not complete. They may not be
10 applicable to the gas-cooled reactors as defined
11 currently, and they might need additional definition as
12 mentioned by Farouk.

13 I think in the regulations, as a body, we
14 have other objectives. The siting criteria tends to
15 think about the total number of deaths by limiting
16 populations around the site. The EIS gets concerned
17 about land contamination and other things of that
18 nature.

19 The safety goals have, in addition to the
20 prompt vitality safety goal, they have the latent
21 fatality safety goal, which is -- tends to be a late
22 containment failure issue. Things like 10 CFR 100 and
23 the steam generator tube rupture focus on smaller
24 releases that don't lead to deaths, but lead to
25 injuries. And then we have things like worker exposure
26 and things of that nature, and those are important
27 regulatory things that we must keep.

1 And when we go to risk-inform our
2 regulations or have a risk-informed review, I think we
3 need to preserve those in some way. And one way that
4 the ACRS has suggested that these might be preserved in
5 a single set of acceptance criteria is the concept of
6 frequency consequence products, where the consequence
7 may be fission product release, may be dose, may be
8 things of that nature, but we have suggested that this
9 would be one way to cover the whole range of frequency
10 and consequence effects in one set of acceptance
11 criteria. And we think that ought to be pursued.

12 I am currently trying to work up a white
13 paper for ACRS on the subject, which would try to make
14 these consistent with the safety goals and with the
15 regulations that we now have and making it consistent on
16 the basis of cost. But I'm not prepared to talk about
17 that today, but it's one thing the ACRS is working on.

18 Other policy technical issues I think are
19 important are the defense-in-depth, how do we set
20 necessary and sufficiency limits on it, especially for
21 the new technologies like the gas-cooled reactor
22 concepts where the containment may not be -- you can't
23 decide whether containment is good enough by using the
24 current design basis accident specification for
25 containment. It just doesn't seem to be applicable.

26 I won't say too much more about that,
27 because ACRS has talked about that subject in great

1 detail. I would like to say a few words about the
2 design basis accident concept.

3 In lightwater reactors, I think it has
4 served us well. It has resulted in a level of safety
5 that I think is acceptable, and it is a convenient way
6 for designers and applicants to do their SERs and their
7 safety analysis reports.

8 And they might want to preserve a sort of
9 design basis accident concept, even if it's risk-
10 informed. And the question that has come up a number of
11 times is: how do you select design basis accidents for
12 the new technology concepts? I mean, we have a set for
13 LWRs that seem to work pretty well, but how do you go
14 about doing it for the new technology designs?

15 I'd like to suggest a way, and I always
16 like to start with a philosophy. And my philosophy on
17 design basis accidents is that you select a set of
18 accidents possibly based on the frequency of initiating
19 events, and then you determine a set of safety
20 provisions to accommodate those by the regulatory
21 acceptance criteria. You have to have acceptance
22 criteria, and you have to have design GDA -- GDCs to
23 tell you how to deal with them.

24 But once you do that, then the idea is that
25 those accident sequences that weren't in the design
26 basis, which were excluded, beyond design basis, are
27 also dealt with to some extent by these safety

1 provisions and to the extent that you meet an overall
2 set of risk acceptance criteria.

3 Now, given that as the philosophy, there is
4 probably a logical way to approach selecting DBAs.
5 First, you need a preliminary -- some sort of
6 preliminary design concept for your reactor, which most
7 of the time you have. You don't have a great deal of
8 design information so that you can do a full PRA, but
9 you can identify initiating events, and you can make an
10 estimate of frequency of these.

11 Given that set of information, you could
12 arbitrarily choose a cutoff value, and it could be
13 arbitrary. You could guide it by certain guidance, but
14 it could be arbitrary. And then you develop your design
15 according to these DBAs using the normal type of DBA
16 specifications.

17 And once you have a design to meet those
18 design basis accidents, then you can develop a design-
19 specific PRA for that design and use that PRA to see if
20 you can meet your higher level frequency acceptance
21 criteria for the full range of consequences.

22 If you don't meet them, then you go back to
23 your arbitrary selection and you lower the frequency.
24 If you meet them well, you could actually up the
25 frequency, cut it off at a higher level and have some
26 relief on design things. But you would iterate on these
27 items until you got a system that worked, the design

1 basis accidents that are put together, and you meet
2 high-level risk acceptance criteria with the PRA for
3 that design.

4 Now, that means you have to have two
5 things. You have to have a PRA for the specific designs
6 that has to be acceptable, and you have to have design
7 -- you have to have risk acceptance criteria, and these
8 risk acceptance criteria cannot be just CDF and LERF.
9 They have to cover the whole range of frequencies, I
10 think.

11 So that's basically the comments I wanted
12 to make today.

13 COMMISSIONER DIAZ: Thank you, Dr. Kress.

14 Mr. Fertel?

15 MR. FERTEL: Thank you, Mr. Chairman. I'll
16 try and be brief, since I know you have questions.

17 Let me start by saying that what I think
18 the previous panel demonstrated is the breadth of
19 activity that the NRC has ongoing right now, and from
20 the industry standpoint we appreciate the commitment
21 that the staff is making, that the Commission is making.
22 I think we fully understand the problem that you have
23 and what the priorities might be.

24 We see the same thing on our side,
25 obviously, and we'll do everything we can to try and
26 help in setting priorities and also in fulfilling our
27 side of the obligations. I think there is some natural

1 select that will occur. Commissioner McGaffigan asked
2 who is paying.

3 Well, that will be a natural selection
4 process as you move through this, because as licensees
5 want something and have to put for it it will determine
6 how aggressive they're going to be. And I think we'll
7 see that happen, in all honesty, as you go down the
8 process.

9 If we could go to my second slide, please.

10 The other thing I noted -- and I think
11 Commissioner Dicus did, too -- is that you're going to
12 get an awful lot of material to read in the June
13 timeframe, and I know you already have a lot of
14 material. You might want to take some speed-reading
15 courses or something, because I'm not quite sure how
16 you're going to get through all of the stuff. And what
17 we talk about today on this list also will add to you.

18 If you could go to the next one.

19 Sam mentioned the meeting yesterday on
20 early site permits. We thought it was a very good
21 meeting. We think that actually the staff and the
22 interactions that they're having with us and other
23 stakeholders we think have been very good, open, and
24 useful meetings trying to identify issues early and
25 disposition.

26 On the early site permits, you have three
27 of them -- you have Gene here, who is going to talk

1 about his particular situation -- all three applicants
2 are working with us to try and make the submittals as
3 efficient as possible. We're going to try and come up
4 with guidance templates so that the submittals look
5 basically the same, to the degree they should, as far as
6 both scope and level of detail. And we're going to try
7 and disposition as many of the issues that we can
8 generically.

9 So from our standpoint, we'll work with the
10 staff and the applicants to try and get through that. I
11 think that from a schedule standpoint I think the
12 discussions yesterday started a discussion on what type
13 of schedule makes sense. We understand that hearings
14 are going to be in the game. That's fine.

15 We think that those can go just fine, but
16 we think that whatever we can do to make the process
17 more efficient we should try and do. We're trying to
18 bring certainty to the process, so that the people that
19 follow can learn.

20 Next? Next slide, please.

21 Going to a subject near and dear to
22 everybody's heart -- ITAAC -- on this slide I don't get
23 to programmatic ITAAC yet, but let me start with another
24 aspect of ITAAC that is of equal, if not more,
25 importance to us, which is finality in the sign as you
26 go part of the ITAAC process.

1 I'd like to make two points here. Our
2 philosophy on this and our proposal on how the staff can
3 sign off -- and I think we may be converging on this --
4 is actually predicated on what's been done in three
5 design certification rules. We're not asking for any
6 more or any less in the terms of finality. What's done
7 in the rules we think was fine, and that's what we're
8 asking for in the COL ITAAC.

9 So it's already the precedent exists, the
10 Commission has done it three times, and we're saying
11 just pick up that, adopt it, and go forward. And that's
12 what we would like to see, and I think we may be
13 converging.

14 The second point I'd like to make is that
15 in no way are we saying that once the staff signs off,
16 if new issues that are safety significant come up, they
17 shouldn't be addressed. Obviously, they should. And
18 that's -- there's no disagreement there when we've met
19 with the staff, at least I don't think so.

20 So I think the two points I'd make is the
21 precedent exists. Our words basically follow it. I
22 think when we get the staff comments on our white paper
23 in June it will provide us a basis for seeing whether or
24 not we actually have gotten and converged on this
25 particular issue. My understanding is we're making real
26 progress towards that, and I hope that's true.

27 Next slide, please.

1 This slide opens up the issue of
2 programmatic ITAAC, and I know we'll have a lot of
3 questions on programmatic ITAAC. And let me just make a
4 couple of points on that to just sort of tee up maybe
5 some of the questions.

6 I don't think anybody on the industry -- in
7 fact, I can say unequivocally nobody on the industry
8 side expects that you're going to allow a plant to start
9 up if the programs are not adequately there complying
10 with the regulations. It borders on absurd when we hear
11 that what you have to do is issue an order after you let
12 us start up to review the programs.

13 We just don't understand it. Okay. We
14 would not start up if the programs were not acceptable.
15 You wouldn't let us; we wouldn't want to.

16 We see the COL as basically the place where
17 you're making your findings on the adequacy of programs,
18 and you need to verify those. Commissioner McGaffigan's
19 question to Jim about, what about at existing sites, it
20 seems that existing sites, unless it's really an
21 anomaly, all of the programs were in place, and they're
22 being implemented.

23 So when you issue me the COL, unless I tell
24 you I'm not going to use the rad protection program
25 that's here, or I'm not going to use the security
26 program, or whatever, you know what it's doing. The
27 findings should be pretty simple, I think.

1 We also believe that when you go out on
2 programmatic ITAACs what you really are doing is you're
3 verifying -- and, again, Sam said, well, we'd have to
4 get into enforcement, and I'm not sure it's enforcement.
5 Right now, under Part 50, you basically go out and you
6 do inspections on the programs. And when the
7 inspections are done, the staff can write an SER.

8 And it's either okay or it's not okay to
9 allow fuel load. It's not a lot different, because when
10 I get my COL I am basically now sitting there with an
11 operating license. And they ought to be able to
12 implement a similar program.

13 And this is my own personal view from
14 talking with some of the senior managers here, because
15 they've asked the question, if you like the programmatic
16 ITAAC -- if you don't like programmatic ITAAC, why do
17 you like the other ITAAC? And I think it's sort of
18 simple when you think back to the process we've been in.
19 We didn't license any of the 103 plants we have with the
20 design complete at the front end. We're now talking
21 about either certified designs or fully designed plants
22 when you issue a COL.

23 And you can implement an ITAAC to sign as
24 you go. You couldn't have done that for any of our
25 current plans. So ITAAC, sign as you go, actually is a
26 good thing from a construction standpoint. In the words
27 you constructed and it will operate -- well, I could

1 look at that and say, "Yes. Did I build it with three
2 aux feedwater systems? And did I test them to see
3 whether or not they provide the flow?" That's how they
4 operate. I built it with three. That's construction.

5 Now, will they perform the way I want them
6 to? That's operation for the plant, the physical
7 facility. We're used to programmatic reviews at the OL
8 stage from Part 50. You do it all the time, and then
9 you do it afterwards as part of the ongoing oversight
10 and enforcement program.

11 So we're -- we understand how that works.
12 And to the degree that you need to do that, we think you
13 should do it the same way, and that's kind of what we
14 argue in the letter that Joe Colvin sent in and other
15 things we've sent. But I guess we'll explore that more
16 as we get into it.

17 Next slide, please.

18 I know that you have the Part 52 rulemaking
19 sitting before you. One key thing that we've emphasized
20 when we've spoken with the staff was we understand it
21 would be a lessons learned, and it would have
22 clarifications, and there may even be cases where there
23 may be policy changes that the staff thinks are
24 necessary.

25 If they are policy changes from what exists
26 in Part 52, we think they ought to provide a basis for
27 why there's a policy change as opposed to a

1 clarification or a lessons learned. And we understand
2 that they were going to be doing that.

3 The other thing was -- Jim mentioned that
4 they're going to get a paper to you in September as
5 opposed to June on our petitions. That will be 14
6 months after we submitted those two petitions, and I
7 think that's just in general, even with all the
8 workload, that seems like a long time to decide whether
9 you're going to go forward on a rulemaking on a request
10 for petition.

11 These are particularly important because
12 you now have early site permit applicants going in, and
13 both petitions affect the early site permit applicants
14 to some degree. Certainly, the one that addresses the
15 need for power in alternate sites is relevant. Also,
16 the use of the current licensing basis could be
17 relevant. So we think that sooner rather than later
18 addressing these petitions will be to both yours and the
19 industry's best interest.

20 Next slide, please.

21 I think we're here today saying that the
22 staff and the Commission, and we hope all of the other
23 stakeholders including ourselves, have been working
24 pretty diligently and cooperatively to try and make sure
25 that the next set of reactors built in this country can
26 be built with predictability, can operate really safely,

1 and we want to look forward to continued NRC leadership
2 in this role.

3 Again, we'll do what we can. We'll provide
4 as much constructive input as we can. We'll try and
5 answer your questions as best we can, and I think that
6 all of us want to make sure that it's done safely and
7 securely and efficiently, and I think that to date
8 everybody is working towards that goal, even if every
9 now and then we sort of stumble on issues that seem
10 hard.

11 Thank you.

12 COMMISSIONER DIAZ: Thank you.

13 Mr. Riccio?

14 MR. RICCIO: Good morning.

15 COMMISSIONER MCGAFFIGAN: Welcome back.

16 MR. RICCIO: Thank you. It's a pleasure to
17 be back before the Commission.

18 I realize the purpose of this morning's
19 meeting is not to discuss the wisdom of men that would
20 construct new nuclear powerplants when we have
21 terrorists targeting the ones that exist. But even
22 prior to September 11th, in the marketplace of ideas,
23 The Idea of Nuclear Renewal was selling for \$2.98 on the
24 remainder shelf.

25 This agency has spent a lot of time -- and
26 it always frightens me when I agree with Mr. --
27 Commissioner McGaffigan, but there has been --

1 (Laughter.)

2 -- a lot of smoke going on here at the
3 agency and very little fire. And it does appear that
4 the -- you know, that some of these proposed designs are
5 less realistic than might otherwise have been the case.
6 And, honestly, I don't see why I and a lot of the staff
7 time is being spent on them.

8 You know, over the past decade, this agency
9 has systematically diminished the role of the public in
10 the licensing of nuclear powerplants. However, you're
11 basically addressing a problem that didn't exist. It
12 wasn't public participation that caused the massive cost
13 overruns in the first generation.

14 It was their inability to manage the
15 construction and operation of these reactors that caused
16 the massive cost overruns, which led Forbes to conclude
17 that it was the greatest managerial disaster in the
18 history of American business.

19 Unfortunately, public participation has
20 been used as a scapegoat by the nuclear industry to
21 blame them for this economic disaster. Additional
22 streamlining in some of the proposals put forth by NEI
23 is not going to improve the economic performance of
24 these reactors and is only going to undermine public
25 confidence in the Commission and in the industry.

26 And, actually, the irrational exuberance
27 that I've seen displayed over these advanced designs is

1 really surprising to me, given that we've had members of
2 the ACRS questioning whether or not these designs are
3 even certifiable.

4 It seems that the industry is caught
5 between a rock and a hard place. Those reactors that
6 have already been certified don't appear to be economic,
7 and those reactors that appear to be even marginally
8 economical don't appear to be certifiable under current
9 U.S. regulations.

10 Now, that was according to Dr. Powers'
11 reports, and I was actually expecting that he would
12 participate in this briefing. I'm sorry to see that he
13 wasn't.

14 As he pointed out, you know, there are many
15 problems with the advanced designs, and I'm not going to
16 go into all of them. The one that really leaped out at
17 me, especially post-9/11, was the fact that pebble bed
18 modular reactors are proliferation resistant. And, in
19 fact, according to Dr. Powers, the pebble bed modular
20 reactor is tailor-made for the facile production of
21 weapons grade plutonium.

22 When you have rogue states and terrorist
23 groups that are attempting to acquire fissile material
24 to be used against this country, I don't see that we
25 should be spreading this technology around.

26 The staff has been concerned, at least in
27 the meetings I've been able to attend -- and as the

1 Commissioner noted, I've only just returned to doing the
2 work -- but I have been concentrating on the preliminary
3 applications on the PBMR and also on the ESPs, on the
4 early site permitting process.

5 And it seems the staff has been concerned
6 about the voracity and the pedigree of some of the
7 submittals from the industry. And after listening to
8 Exelon's performance at many of the meetings this
9 spring, I can understand why. Exelon claimed that the
10 reactor has the pebble bed out of containment. And I
11 don't mean to beat a potentially dead horse, but there
12 were so many misstatements that I felt it needed to be
13 addressed.

14 As Dr. Powers said in his reports, that's a
15 confinement, not a containment, and we can debate that,
16 you know, on into the future.

17 Exelon also stated that there were no
18 accidents at the thorium high temperature reactor in
19 Germany, upon which is -- one of the two designs upon
20 which they are premising a lot of their preapplication
21 work. In fact, the THTR was taken off line in 1986,
22 after a fuel -- tennis sized fuel ball got caught in the
23 annulus. It was blasted out by apparently a blow of
24 helium.

25 It released radiation into the environment,
26 something that supposedly wasn't supposed to happen with

1 these fuel pellets. And basically they didn't -- it
2 didn't work as advertised.

3 Of course, there's very little mention of
4 this in any of the information that's been forthcoming
5 from either the industry or the staff. I'll admit that
6 I filed a Freedom of Information Act request as soon as
7 I knew I'd be presenting here today. And,
8 unfortunately, I just got the first package yesterday.
9 Not to beat up on the FOIA staff; they do an excellent
10 job.

11 I have concerns, too, about the use of
12 probabilistic risk assessment. And as the Commission
13 well knows, I've been here before talking on that
14 subject. And to my mind, it's an excuse to regulate the
15 industry less and to inflict more risk upon the
16 industry. And I'm greatly concerned, especially with
17 the advanced designs, because you have basically no
18 operating history.

19 I was concerned with the use of PRAs in
20 regulation for the current generation, but at least you
21 have a relatively, you know, substantive database.
22 There is very little data on these advanced designs.

23 In conclusion, Greenpeace believes that the
24 NRC's limited resources could be better spent assuring
25 that the current generation of nuclear reactors does not
26 pose an undue risk to the public health and safety.
27 We're unequivocally opposed to the construction of new

1 nuclear reactors and believe that the safest reactor is
2 the one that's never built.

3 However, if you're going to continue down
4 this road, there are things you should be aware of, that
5 I believe your resources have been squandered by
6 basically the -- you know, the pushing of advanced
7 designs that may never come to fruition.

8 The streamlining of the licensing process
9 is not going to improve the economics and is only going
10 to push the public to the point where they feel they
11 must be more demonstrative. And basically, you should
12 really look into the history of the THTR and the other
13 reactors that are purportedly being used as models for
14 any of these new designs.

15 I thank the Commission for this opportunity
16 to present our comments and would be free to answer any
17 questions you might have.

18 COMMISSIONER DIAZ: Thank you.

19 COMMISSIONER McGAFFIGAN: Mr. Chairman,
20 just as a -- Mr. Riccio didn't ask to put his statement
21 in the record as if read, which I -- you know, he's the
22 only one that gave us a detailed statement in advance,
23 and it probably belongs in the record as a whole, and
24 then his oral comments would follow.

25 COMMISSIONER DIAZ: We will be pleased to
26 put it in the record.

27 MR. RICCIO: Thank you.

1 MR. GRECHECK: All right. Good morning.
2 It's a pleasure to be back here. As several other
3 speakers have spoken, we had this -- this briefing back
4 in July, and at that time I remember sitting here at
5 this table talking about a lot of speculation about what
6 we might do and what we might consider.

7 And, certainly, there's been a lot of
8 progress made in less than a year, so it's a real
9 pleasure to come here and talk about that.

10 If you'll go to the second slide, the
11 objectives of the project -- what we're calling our ESP
12 project, which encompasses the entire technology review
13 of possible future nuclear, this slide is still the same
14 from what we had last year, because our goals have not
15 changed.

16 We're still interested in maintaining the
17 nuclear option. We are evaluating advanced reactor
18 technologies, and I'll talk about that a bit in terms of
19 where we stand on that. And then, finally,
20 demonstrating the Part 52 licensing process, because in
21 the absence of a demonstration we considered the
22 uncertainties and the possible paths that could take
23 place as just adding to the overall uncertainties of a
24 decision as to whether future nuclear is indeed
25 economically viable for our company.

26 The nuclear option -- we've been quite busy
27 with that. If you go to that next slide, you can see

1 that we've been participating in a number of NEI
2 activities. We've also been working very closely with
3 DOE on the Nuclear Power 2010 initiative, and we are
4 also actively engaged with several of the potential
5 reactor vendors on their utility groups.

6 Now, several of them have set up very
7 formal utility input processes, and we are involved in
8 most of those.

9 From a reactor technology standpoint, we
10 are currently evaluating the entire spectrum. And this
11 is the same opportunity and dilemma that the staff and
12 the Commission faces, that there are -- every technology
13 you look at has a number of very attractive features to
14 it.

15 It also has uncertainties in terms of their
16 ultimate operability and designability. And the
17 fundamental point is is that at this point a clear
18 business case for any one of those has not yet been
19 made. So in order to keep the option open, we are
20 forced, just as the staff is, to look at all of them and
21 be juggling on a daily basis or a weekly basis where we
22 think they stand, what their advantages and
23 disadvantages are, continue to engage with the potential
24 suppliers to talk about potential packages of how those
25 could be presented. And, again, at the present time, we
26 have not made a choice.

1 I understand the dilemma that the NRC
2 faces, but when you ask the industry to make a choice I
3 can only speak from the potential user perspective, of
4 course, not the vendor's perspective. But we are not in
5 a position to make a choice because many of the factors
6 that go into a choice come right back to the Commission
7 in terms of the license ability and the technical
8 adequacy and all those things. So it's like it's a
9 circle that just goes around and around.

10 Although having said that, I will say that
11 I think in just the time since last July, a great deal
12 of information has been developed on all of the
13 technologies, and we are moving in the direction of
14 understanding them better, understanding a business case
15 better, understanding how things could happen better,
16 but there is still more to be done there.

17 Just to go -- we talked a little bit about
18 accomplishments. Just since July, Dominion completed
19 the site feasibility study. At the time we were here,
20 at that time, we were saying that we were reviewing the
21 Surry and North Anna sites. We concluded that both of
22 those sites were indeed feasible as future nuclear
23 construction locations. We did select North Anna as the
24 preferred site for the early site permit.

25 We did inform the NRC staff back in April
26 that we were indeed going to proceed with the ESP
27 application. As I mentioned, we've been working with

1 DOE. We did receive co-funding to evaluate feasibility
2 of federal sites, which is a project we -- which is
3 going on right now. We do have people out looking at
4 three different federal sites as potential locations for
5 future reactors, and we have a proposal pending at DOE
6 right now to support the North Anna ESP application.

7 At the moment, we are preparing the ESP
8 application for North Anna. As several people have
9 mentioned, we had the kickoff meeting with the staff
10 yesterday. I would also agree, I think a lot of
11 progress was made during that meeting. It was a good --
12 it was a good point of starting. We're continuing to
13 evaluate the DOE sites, and the technology assessment is
14 continuing.

15 So with that background, let's talk a
16 little bit about what we -- what I perceive as some of
17 the challenges that we are facing as we go forward. And
18 the first of those will lead into a discussion of
19 schedule. It is a challenge to obtain NRC approvals in
20 timeframes that support business decisionmaking.

21 And it's not necessarily so much what the
22 actual timeframe is as a reasonable certainty that the
23 timeframe that's advertised will indeed be met. If we
24 agree that a certain process should take certain lengths
25 of time, and then it doesn't, for whatever reason, as a
26 result of resources missing or as a result of not
27 knowing what the standards are and then having to come

1 back and redo work that's already been done, that leads
2 to further uncertainty in making decisions that we all
3 have to make.

4 In the ESP process, there is a lot of
5 guidance that we and the staff need to work on as to
6 what those applications need to look like, what
7 information is indeed needed, and how that information
8 will be obtained. There's a great deal of guidance
9 information out there that the staff refers to, but most
10 of that information or most of that guidance was not
11 developed for the ESP process.

12 It was developed for construction permit
13 applications 25 years ago. There is -- there are
14 references there to standards that have been since
15 superseded. There are references to obtaining
16 information as if it was a greenfield site, which
17 clearly is not the case with the current generation of
18 applications.

19 And, finally, I agree with Mr. Riccio that
20 good communications with all stakeholders is important.
21 It is certainly not our intent in any way to exclude the
22 public from this process. That is not the objective.
23 The objective is is to establish how that will happen,
24 when it will happen, what information will be available,
25 and then proceed with it, and not spend a lot of time in
26 uncertainty.

1 From the schedule standpoint, we made this
2 point several times, and I can't take the opportunity or
3 miss the opportunity to say it again -- that we do have
4 -- ourselves and the two other applicants are dealing
5 with existing sites. Those sites were previously
6 approved for additional reactors, but even more
7 importantly than that they have been the site of ongoing
8 operations now for 20 years plus.

9 As I indicated here, the NRC has inspected
10 the North Anna site for three decades. You know,
11 everyone is very familiar with that site, very familiar
12 with the characteristics of that site. But even more
13 importantly, there have been more recent licensing
14 activities going on there which add to the body of
15 knowledge that we have there.

16 We have a North Anna ISFSI license renewal
17 -- we had a North Anna ISFSI license application which
18 was approved within the last several years. The license
19 renewal process for North Anna is getting to its
20 conclusion. The environmental statement has just been
21 issued, so there's been a great deal of work done that
22 is very contemporaneous. It's not 20 years old. It's
23 recent work.

24 It's recent activity that has taken place
25 on that site, and we think that what we need to do now
26 is to be creative in terms of using that rather than
27 saying, "Well, it's a data source, but we have to enter

1 that data source back into some, you know, from scratch
2 process because we have information." The challenge is
3 now how to use that in an efficient manner.

4 And the resources need to be there. As
5 several people have said, we are dealing now with real
6 applications. These are not speculation anymore. This
7 is real. We are engaged, and we'd like to see the same
8 thing from the staff.

9 The target schedule, as we continue to
10 discuss, we're probably not that far off from what the
11 staff is proposing. I think what we're asking for is
12 that the discipline that we saw during license renewal
13 be applied to the ESP process as well. And what makes
14 that particularly applicable is that there are many,
15 many processes that are parallel between what we have
16 been through in license renewal and what we are about to
17 embark on in ESP.

18 It's the same kinds of products need to be
19 developed. We have an environmental impact statement.
20 Obviously, a safety evaluation needs to be provided. We
21 have opportunities for public involvement in both,
22 opportunities for hearings in both. These are not
23 different.

24 So we can go back and look now at the
25 historical experience with license renewal and say,
26 "Well, what did it take to do these very, very similar
27 processes?" With the recognition that license renewal

1 was a discipline process. It was never allowed to
2 simply drift and grow into its own schedule. We had a
3 lot of agreement up front as to what that was going to
4 look like.

5 So on the slide here called Target
6 Schedule, what I've tried to do there is to -- is to
7 just take some very, very high level bullets and say,
8 "Well, what has it taken in license renewal?" Well, the
9 process of issuing the SER -- and this is counted from
10 date of application to the date that the staff was ready
11 to issue the SER -- has ranged between 17 and 20 months.
12 That's a pretty consistent performance over a number of
13 applications.

14 Similarly, issuing the environmental impact
15 statement has run about the same time. So when we try
16 to develop what we think is a reasonable ESP schedule,
17 we just pick a number that's, you know, midway between
18 there saying, basically, 18 months looks reasonable.

19 If you look at that overall, that means 20
20 to 25 months, including a hearing process, is -- it
21 looks reasonable. And we continue to believe that it
22 should be better than that for the first generation,
23 because the first generation has the benefit of having
24 fully characterized sites with all of the experience.
25 But even -- not even taking credit for that, 20 to 25
26 months does look reasonable.

1 COMMISSIONER MERRIFIELD: A little
2 clarification -- on two of these, you've picked a mid
3 range. With hearings, you picked the low end of the
4 range.

5 MR. GRECHECK: The reason that we picked
6 that specifically for North Anna is because our
7 expectation is is that that's what we will see at the
8 North Anna site. We believe we have a tremendous amount
9 of public support there, and we expect it to be a
10 relatively straightforward process.

11 As I said, this was a very high level
12 chart. There's a very detailed comparison that we've
13 provided to the staff at several meetings, and, you
14 know, it goes point by point, not just issue the SER,
15 but then, you know, point -- all the elements that go in
16 that, and we've done this comparison.

17 As I mentioned, I think the NRC guidance is
18 -- is there to some extent, but it's difficult to
19 effectively use. It is in various forms that don't
20 effectively tie in, don't integrate very well. Some of
21 it is so founded in the Part 50 process that it clearly
22 is going to need to be revised.

23 Some of the information that is in the
24 construction permit application guidance tends to assume
25 that you are specifically referring to a particular
26 reactor technology. And if you don't do that, if you're
27 doing the envelope approach, which we are going to be

1 using, then some of that guidance does not appear to be
2 directly useful.

3 And, you know, fundamentally, I think one
4 of the end products of this initial round will have to
5 be some more clearly defined NRC staff guidance as to
6 what an ESP application looks like.

7 Now, we are pledged to work with the staff.
8 One of the reasons that we have committed to work with
9 NEI and the other two applicants to basically submit a
10 common ESP application is that we think that it is the
11 most effective use of resources.

12 I just want to make sure that we understand
13 what we're talking about here. We are saying that all
14 three applicants will agree with the staff up front as
15 to what an adequate QA program is, for example, and then
16 submit the same thing. We are going to agree what
17 adequate seismic information is, and then we're going to
18 submit the same kind of information.

19 The applications will look the same. So
20 this is not going to be three independent applications
21 that the staff has to devote three teams to --
22 independently to review and issue -- and hassle out the
23 technical issues separately.

24 We are going to be dealing with one body of
25 technical information, one body of requirements, and the
26 final product will be very, very common with the --
27 obviously, the site-specific details called out. But it

1 is really intended to say, "We've got one application
2 with three subsets," rather than three separate
3 application processes.

4 Now, recognize this is -- this is not new
5 -- I mean, this is new. This is not conventional
6 practice, but I -- we are saying that we think this is
7 an efficient way, from both the industry perspective
8 because we're not going to be having one applicant out
9 there blazing the trail and then having somebody come
10 back right behind it and say, "Well, no, we don't agree
11 with that; we want to try something else," and then have
12 to go into an iterative process.

13 And from the staff's perspective, we think
14 that we can debate the issues once and then put them to
15 bed.

16 With that perspective, though, I know we
17 were talking about fees before. We do think there's a
18 lot of generic work being done here. And to the extent
19 that generic work is being done that is either leading
20 to guidance preparation or setting standards, we do
21 think that there ought be consideration of fee waivers
22 in that respect.

23 Finally, communications -- we are -- as I
24 indicated, we are maintaining commonality to a maximum
25 extent with the other announced applicants. We are
26 doing a lot of early interaction with the staff. We
27 started out back in April with a senior management

1 meeting. We had the joint kickoff meeting yesterday,
2 and our proposal is is that the technical issues will be
3 common as we proceed.

4 And we are keeping stakeholders informed.
5 We've been doing that already with our local
6 stakeholders. And when the staff gets ready to start
7 having their public meetings, we'll certainly want to be
8 participating in those meetings to maximize the amount
9 of information transfer that takes place.

10 So, in summary, in 10 months since we
11 talked last, a lot has happened. Much has been
12 accomplished, but there's much to do. We're at the
13 threshold of making far-reaching decisions that will go
14 to the energy security of the country for a long, long
15 time.

16 I think as Jim Lyons indicated, we're at an
17 exciting point where a lot of people are gravitating to
18 this point, but there's a lot of work to be done, but
19 it's important work. It's work that will make a
20 difference for a long time.

21 We have a real commitment to common
22 industry approach. We're trying to save resources on
23 all sides by making as much common through NEI as
24 possible. But the ultimate goal of all of this is that
25 we need to make sure that as we work through Part 52,
26 elements that have been in place for a long time but

1 never demonstrated, that the results of that are stable,
2 predictable, and timely.

3 Thank you.

4 COMMISSIONER DIAZ: Thank you, gentlemen.
5 Obviously, it seems like we could probably use a few
6 more hours in this round.

7 Commissioner Merrifield has a noon
8 appointment, so he will start.

9 COMMISSIONER MERRIFIELD: Thank you very
10 much, Mr. Chairman.

11 I want to -- as promised, I want to go back
12 to Marvin Fertel. If we don't require programmatic
13 ITAACs, what is going to drive -- one of the accusations
14 is that a licensee in a submission for a combined
15 operating license would have sort of a shell. This is
16 what our program in this given area is going to look
17 like, without having the necessary amount of detail in
18 it that we need in order to provide reasonable
19 assurance.

20 How do we avoid that? How do we make sure
21 that we have the depth of relevant information for us to
22 make a determination on those programs?

23 MR. FERTEL: At least my expectation is you
24 wouldn't be getting something like that, but your
25 question is a valid one. I think you could avoid it in
26 a couple of ways. One, you could issue the COL with a
27 license condition requiring the additional information

1 prior to fuel load. Two, you could not issue the COL
2 until you got the programmatic information.

3 Again, from our standpoint, we don't see
4 any licensees looking to skirt through and not provide
5 the information. So, I mean, I -- I think you can come
6 up with hypotheticals -- the staff and others can come
7 up with hypotheticals -- you won't get this, you won't
8 get that.

9 I think you still have the entire COL
10 process that you have to go through. The reason for
11 doing this is to disposition this at the front end to
12 avoid the uncertainty at the other end. When Gene just
13 said it may be more important to have time scales on
14 some of this that you meet, than short time scales that
15 you don't meet, what we need for business decisions is
16 certainty and predictability.

17 It's not in my best interest to leave loose
18 ends at the COL if I can avoid it. I would rather give
19 you my programs and get them approved. If I don't give
20 them to you, I think if I were sitting on the staff
21 side, I would say -- put in a license condition that
22 says, "By or prior to X action, you must submit the
23 following information."

24 You won't be able to verify some of the
25 programs at the time you approve the COL. I mean, you
26 obviously couldn't verify programs that we haven't
27 implemented yet. So operator training, for instance,

1 you would have to, at some point before we actually
2 loaded fuel, go out, and we think you would do the
3 normal inspections you do to see whether or not we've
4 put the training program in place, we've got the
5 procedures, the people are trained, etcetera, and you do
6 that.

7 But, for instance, the ISI and IST program,
8 you couldn't do that for 10 years or more. So, I mean,
9 you can't verify some of these things until the plant is
10 actually down the road, because of the nature of what
11 the programs are. But we -- to be honest, Commissioner
12 Merrifield, we don't see that issue as one that you
13 couldn't manage at the front end. And to be honest, we
14 don't see anybody not putting in the programs. It's not
15 in their best interest.

16 COMMISSIONER MERRIFIELD: Well, I recognize
17 that. Obviously, there's a tension there between where
18 you are and where our staff is. And I think the five of
19 us have to figure out the best place to resolve that,
20 and there may be further discussion on a staff-to-staff
21 level that could occur to bridge some of that.

22 One could assert -- you say, "Well, you
23 know, sort of trust us," you know, at the end we really
24 -- you know, we're going to need to put these things in,
25 so it's in our best interest to do that. To paraphrase
26 a former President, you know, we can trust, but
27 obviously we need to verify.

1 MR. FERTEL: Again, I didn't say trust us;
2 I said put a license condition in. And I said don't
3 even issue the COL if you feel strongly enough that you
4 don't trust. If I come in with no programs, don't issue
5 me the COL.

6 If I come in with all of the programs but
7 one and say, "Hey, I'm still trying to firm this up, and
8 it's going to take me another two years," for whatever
9 reason, which I have a hard time imagining, then issue a
10 license condition that indicates that prior to fuel load
11 that needs to be in place and signed off, and then maybe
12 even have a hearing, because you haven't had a hearing
13 on that particular one.

14 I mean, we're not honestly trying to get
15 out of any programs. And, again, certainty on our side
16 is more important than making believe that we're going
17 to sneak through something.

18 (Laughter.)

19 COMMISSIONER MERRIFIELD: All right. Let
20 me turn to Mr. Riccio. I have a little bit more of a --
21 it's a little bit of a different question for you. One
22 of the things that you talked about in your presentation
23 is the fact that we -- that in your eyes we've
24 squandered resources, we've spent money reviewing
25 designs that may never come to fruition where we could
26 better use that money on reviewing the operations of the
27 current 103 operating reactors.

1 What -- and I understand where you're
2 coming from on that. But what statutory authority will
3 we have as an agency to say, "Well, we think that these
4 things are too speculative. Therefore, we're not going
5 to seek the funding necessary to meet licensees or
6 companies in bringing these forward, despite the fact
7 that we impose fees relative to those.

8 What -- I mean, it's a nice thing for you
9 to say. But what -- you're a lawyer. What statutory
10 authority do you have --

11 MR. RICCIO: There may not be statutory
12 authority. But the thing is, you're actions are so
13 broadly written, I'm sure you could find some room for
14 it in there.

15 The industry has been coming forward with
16 these, you know, new designs that basically don't have
17 any operating history, don't have any real -- I mean,
18 even your staff was shocked at the lack of information
19 being put forward by Exelon for the pebble bed. And I
20 will say, too, that I was impressed by, you know, some
21 of the statements that were made by Exelon rose your
22 staff right out of their seats.

23 COMMISSIONER MERRIFIELD: Well, but --

24 MR. RICCIO: They're being --

25 COMMISSIONER MERRIFIELD: But isn't that
26 really the heart of what you're asking? We've got to

1 ask the serious questions about whether those designs
2 have the safety margins that --

3 MR. RICCIO: And I had recommended in those
4 meetings that the Commission address some of these
5 issues early on, rather than leaving it down to the
6 staff and industry level. You know, if you were to --
7 if the staff -- or, sorry, if the Commission would have
8 gone and addressed some of the issues raised in Dr.
9 Powers' trip report and many of the other -- you know,
10 even the previous letter from '88 that called some of
11 these new designs a major safety tradeoff, then we may
12 not have wasted the time spent on the pebble bed, or
13 potentially even the GTMHR or the MHTGR, whichever, you
14 know, name General Atomics wants to attribute to it now.

15 COMMISSIONER MERRIFIELD: Yes. But in --

16 MR. RICCIO: We might not have wasted that
17 time and could have been spent it, as I said, you know,
18 focusing on the reactors that exist --

19 COMMISSIONER MERRIFIELD: Well --

20 MR. RICCIO: -- or even, you know, while I
21 don't want to see any new reactors built, the industry
22 might have been better off had they focused their
23 resources on reactors that have been certified rather
24 than reactors that basically have economic profiles that
25 made them potentially more attractive.

26 I think the reason some of these designs
27 may have appeared to be potentially more attractive is

1 because they hadn't been certified. They hadn't gone
2 through any process.

3 COMMISSIONER MERRIFIELD: Well, that's
4 fine, but the -- but it is the process, indeed, of
5 having to go through design certification that winnows
6 out those that aren't -- that in your eyes wouldn't meet
7 those safety criteria.

8 MR. RICCIO: It may --

9 COMMISSIONER MERRIFIELD: In the rule -- I
10 mean, what you're -- I mean, it's attention. It's
11 attention that you recognize. But as a Commission, our
12 role is as -- is to settle policy issues, and there are
13 certain technical issues in early technical areas where
14 we can and should lean to our staff to do the early
15 work, to raise those policy issues that would come to us
16 for ultimate resolution, which is what Congress and the
17 American people require of us.

18 And I understand what you're saying, gee,
19 if we just jumped in early and decided some of those
20 policy issues, we might not have needed to spend some of
21 that money in the pebble bed. But I'm not certain --
22 again, I've got to have a -- I've got to have a legal
23 basis in order to make those kind of determinations that
24 you're asking us to make. And I'm not -- I don't -- in
25 my read, I don't find those.

26 MR. RICCIO: Well, I think the Commission
27 has the authority to determine whether or not it's going

1 to allow reactors to be constructed in this country that
2 abandon defense-in-depth and move over to a more -- you
3 know, more of an approach that measures balance between
4 mitigation and prevention. You know, these issues have
5 been floating around there since the '80s.

6 COMMISSIONER MERRIFIELD: Sure. But as it
7 relates to -- well, there's a difference here, but I
8 think -- I think the tension is as it relates to a given
9 design. I don't think the Commission -- I or the
10 Commission -- without sufficient information from the
11 staff on the technical issues can simply fly out of
12 nowhere and say, "Well, you know, I just don't think
13 that's a good design. I mean, I don't think" --

14 MR. RICCIO: Well, you know, the ACRS
15 pointed out to the Commission in 1988 that the advanced
16 designs being promoted by the Department of Energy
17 constituted major safety tradeoffs. And I thought that
18 that would have at least triggered, you know, some work
19 on potentially the staff's part to see whether or not
20 these are even viable.

21 You know, Dr. Powers said it's not
22 certifiable and --

23 COMMISSIONER MERRIFIELD: Absent having the
24 designs in front of us to actually review, we wouldn't
25 be able to make that determination in the abstract. And
26 while ACRS can make -- and we ask them to sort of think
27 big and come back to us with some recommendations,

1 absent having a specific license application in front of
2 us, again, I don't think we, as a Commission, can act on
3 those recommendations without having specific
4 information from our staff.

5 But, anyway, I want to go on to -- I've got
6 to go. I want to go to -- actually, I need -- that
7 needs to be my last question.

8 Thank you, Mr. Chairman.

9 COMMISSIONER DIAZ: Thank you, Commissioner
10 Merrifield.

11 Commissioner McGaffigan?

12 COMMISSIONER MCGAFFIGAN: I agree with
13 Commissioner Diaz. We could be here a long time if we
14 asked all the questions that we have, so I'll just try
15 to ask a few of them.

16 Dr. Kress, as I see the various items that
17 you say we need to work on, they almost all relate to
18 gas reactors. I mean, we have a framework in place for
19 lightwater reactors where we don't have to worry about
20 coming up with new CDF and LERFs, and we don't have to
21 come up with new defense-in-depth or new criteria for
22 selecting design basis accident --

23 DR. KRESS: You might want to think about
24 selecting design basis accidents.

25 COMMISSIONER MCGAFFIGAN: Well, that gets
26 to the double-ended -- that we have a process for
27 looking at double-ended guillotine breaks and all of --

1 DR. KRESS: I didn't mean that these are
2 outstanding issues that --

3 COMMISSIONER McGAFFIGAN: Right.

4 DR. KRESS: -- that I'm throwing in. I
5 think the staff is on top of it.

6 COMMISSIONER McGAFFIGAN: But if I'm
7 listening to you properly, if I am -- if I am Dominion
8 and I'm trying to figure out which of these reactors is
9 actually likely to be ready in a finite period of time,
10 I've heard their staff say that there's a five-year lead
11 time for some research that needs to be done. I've
12 heard you saying we need to -- and the staff, we need to
13 do a lot of inventing of things or follow an exemption
14 process.

15 And if you're in an exemption process and
16 that's -- that's all of those exemptions -- and Steve
17 can correct me if I'm wrong -- but if they're an
18 integral part of the application they are subject to
19 hearings and all of that. So it's quite inefficient, if
20 you don't have the framework in place. So I think it
21 points to, at least in terms of regulatory risk, that
22 there's less risk with lightwater reactor designs than
23 there is with the gas reactor designs. It's just a
24 fact.

25 DR. KRESS: I think you're absolutely
26 right.

1 COMMISSIONER MCGAFFIGAN: Okay. I'll pick
2 up, Mr. Riccio, in a different concept, different part
3 of your talk. You complain about public participation,
4 that the process that we have in place in Part 52 is
5 something that the Congress -- my recollection, it was
6 the Energy Policy Act of 1992 endorsed, and my
7 recollection is my party, the Democratic party, was in
8 charge of both houses in 1992.

9 (Laughter.)

10 MR. RICCIO: I recollect that.

11 COMMISSIONER MCGAFFIGAN: And so it's a --
12 it was the consensus view of the Congress that the
13 degree of public participation that is allowed in the
14 Part 52 process is the proper degree, and there's quite
15 a robust degree of public participation.

16 You're going to be involved -- if I take --
17 if I'm Dominion and I'm trying to figure out whether --
18 how much I should worry about you moving within 50 miles
19 of North Anna, you will -- even if you're not, you're
20 going to get -- you have a chance for hearing on the
21 early site permit. You have a chance for hearing on the
22 combined operating license. I mean, a mandatory hearing
23 on the early site permit.

24 You have scoping meetings for the EIS. You
25 have comments on the draft EIS. You have -- totally
26 apart from whether you adjudicate these things. There
27 strikes me that there's an enormous amount of public

1 participation in the process as mandated by the Congress
2 in the Energy Policy Act of 1992.

3 MR. RICCIO: I --

4 COMMISSIONER McGAFFIGAN: One little --

5 MR. RICCIO: -- since the hearings in '92,
6 and, in fact, I worked to sue this agency over the
7 original license -- or the original promulgation of Part
8 52, because it removed the public's right to a hearing
9 post-licensing.

10 The industry had used that as a trojan
11 horse to claim that it was those hearings that had
12 caused the construction delays that basically crippled
13 this industry back in the '70s. And I guess it's only
14 in that perspective that I see a diminishment of the
15 public's right to participate.

16 Also, the use of generic -- use of generic
17 issues to take issues off the table has also been a
18 problem. I like the fact that --

19 COMMISSIONER McGAFFIGAN: Whenever we do
20 that, we do it by rulemaking, and you have a chance to
21 comment on the rule.

22 MR. RICCIO: I understand. It's --

23 COMMISSIONER McGAFFIGAN: And you have a
24 chance to sue us after the rule is finalized. Okay.
25 Well, okay. Just for the record, you -- I enjoyed
26 reading Mr. Bradford's and Mr. Gilinsky's, et al.,
27 comments. But I don't think that was where the body

1 politic as a whole was in the late 1980s, and we'll just
2 leave it at that.

3 I'm trying to -- the 2010 initiative, if
4 I'm Dominion, and if I have a dream of having a plant in
5 2010, which you may or may not have, you're going to go
6 through -- you're going to apply for an ESP, according
7 to the staff, in September 2003. Under your schedule,
8 you would get a result -- nay or pro -- in September
9 2005.

10 If you're ready for a combined operating
11 license application at that point, which you may or may
12 not be, but if you were to follow up now with a
13 certified design and an early site permit, and let's
14 hypothesize that that -- that's going to take two years.
15 Now I'm to September 2007.

16 MR. RICCIO: Right.

17 COMMISSIONER McGAFFIGAN: And you have the
18 license at that point, assuming a positive decision to
19 go build in September 2007. Can you have a plant in
20 2010? I mean, are any of these vendors telling you they
21 can get it built in three years from the date that you
22 get the application approved?

23 MR. GRECHECK: Not yet, no.

24 COMMISSIONER McGAFFIGAN: Is that an
25 important part of being able to -- I mean, how quickly
26 do you think you have to be able to build the thing in
27 order to be financially viable?

1 MR. GRECHECK: Well, first, 2010 is the
2 administration's objective. It's not Dominion's
3 objective.

4 COMMISSIONER MCGAFFIGAN: No, I understand.
5 But I'm trying to help Mr. Card thing about this stuff,
6 too. Whatever.

7 MR. GRECHECK: I would say we are hearing
8 from various vendors that four-year construction periods
9 look reasonable. And, again, as I said before, it's not
10 so much the time as it is the predictability. If
11 somebody can come to me and say, "We could build you a
12 plant in 48 months from the date of start," with a
13 reasonable amount of assurance that that indeed will
14 happen, then we can build a financial case around that.

15 The concern would be for somebody to say,
16 "We can do it in 48 months," and then, for whatever
17 reason, whether it's construction issues, whether it's
18 licensing issues, whether it's financing, whatever it
19 is, it actually turns in to be 10 years. Now that is a
20 very, very serious financial problem, and that's
21 something that we will be doing everything we can to
22 control before we would commit ourselves to a project of
23 this magnitude.

24 But, you know, I'm hearing a lot of good
25 talk. We've engaged with a number of suppliers and AEs,
26 and they are telling us, you know, 48 months look
27 reasonable, and we are working with them very closely to

1 see if we can come to a level of assurance that we
2 believe that.

3 COMMISSIONER McGAFFIGAN: I might just take
4 another minute, I guess going back to Mr. Riccio as
5 well. ITAAC I'm going to leave. I mean, we've got a
6 paper in front of us, and we'll figure it out. But the
7 issue that Commissioner Merrifield was talking about --
8 I do think these things have to ripen.

9 There were several of us who were skeptical
10 about the hype with regard to the modular -- the pebble
11 bed modular reactor. I think the industry probably, if
12 I was going to lay out money, I would have been
13 skeptical, too.

14 And then, the process, you know, followed
15 and they discovered, after a hard look, according to
16 their -- Mr. Rowe's statements to financial analysts
17 that there were significant financial, technical, and
18 organizational issues that they needed to overcome, and
19 it was no longer appropriate for Exelon to be in that
20 business in his opinion.

21 And so that -- but the technical issues --
22 and to the degree the financial issues are connected to
23 the technical issues -- were fairly evident throughout
24 the process, and the staff did a good job of uncovering
25 them. So I think that the proper role for us is to wait
26 until these issues ripen. Sometimes they don't ripen

1 because the plug gets pulled by the vendor itself as it
2 becomes more obvious that there are issues.

3 So I think we -- you know, the 1988 memo,
4 which I am not familiar with, from ACRS, may or may not
5 reflect current ACRS thinking. But, more importantly,
6 it -- I think Commissioner Merrifield was right. It
7 didn't reflect the process as we've undertaken it the
8 last couple of years. I mean, somebody comes in with an
9 application.

10 You know, in contrast with the PBMR, I
11 think the AP1000 process is likely to be very, very
12 straightforward. I mean, that's my personal opinion.
13 You have a right in the AP1000 process as a member of
14 the public to be involved. No member of the public has
15 thus far chosen to get involved in any of the design
16 certifications.

17 MR. RICCIO: I think that was the point of
18 the rewrite of Part 50 into Part 52 was to basically
19 divorce the siting and the reactor design from the
20 public's purview.

21 COMMISSIONER MCGAFFIGAN: But you have the
22 opportunity. You just haven't afforded yourself the --

23 MR. RICCIO: That's not the point, though,
24 Commissioner. The reality is, if the public isn't aware
25 that a reactor is going to be constructed on a site
26 that's going to threaten them, why, in God's name,
27 should they get involved in the process? By removing

1 even the type of reactor design that is going to -- you
2 know, to be placed on that site, you even further
3 divorce them from reality.

4 You know, it was interesting to see that
5 when the staff misspoke and said that the industry was
6 applying for siting for new reactors, the industry came
7 up out of its chair, "We're not applying for new
8 reactors. We're merely getting an early site permit
9 process." I think that demonstrates their attempt to
10 really divorce the siting from the reactor.

11 And, honestly, I think if you go ahead with
12 some of these more advanced designs, you're going to
13 have problems, and, in reality, it's the agency that's
14 going to get blamed for the problem. I can see an
15 instance where you'll go down the path, new issues will
16 be -- will arise about these conceptually new designs,
17 and then you'll be placed in a position that has already
18 been outlined where you have to make a go-ahead decision
19 that you may not have the information --

20 COMMISSIONER MCGAFFIGAN: But I just --
21 I'll end this, Mr. Chairman, with just -- just this last
22 -- I think you're reflecting more the politics of
23 environmental community funding than you are -- the
24 opportunities are there. You can be involved in an
25 early site permit. You can be involved in a design
26 certification.

1 What you're saying is that unless you have
2 an energized public at a particular site, it's hard to
3 get the funding that you would need to get involved in
4 the design certification.

5 MR. RICCIO: It's not a question of
6 funding. It's a question of whether you have -- you
7 know, like you guys are concerned about your full-time
8 equivalents, you know, your FTEs. You know, you think
9 you're stressed?

10 You know, the amount of people that are
11 paying attention to this in the public are few and far
12 between. And those resources, quite honestly, should be
13 better focused upon the reactors that exist and that are
14 threatening our livelihoods.

15 COMMISSIONER MCGAFFIGAN: Well, we believe,
16 and I think that -- I can't take any credit for it, but
17 the Commission of the late '80s and the Congress of the
18 late '80s and early '90s, I think put together a process
19 that makes sense, that it's efficient and effective, and
20 that adequately protects public rights, if the public
21 chooses to exercise those rights. And I'm going to
22 leave it at that.

23 COMMISSIONER DIAZ: Thank you, Commissioner
24 McGaffigan.

25 Obviously, you know, we could spend a lot
26 of time talking about the healthy effects of market

1 forces, which I happen to believe in, being that I am in
2 the other party.

3 (Laughter.)

4 But --

5 COMMISSIONER McGAFFIGAN: Democrats believe
6 in market forces, too.

7 COMMISSIONER DIAZ: Yes. Yes, yes, yes.
8 Not to the extent that we do, but that's --

9 (Laughter.)

10 No, I'm kidding. I'm kidding.

11 Obviously, selection or non-selection is a
12 very important process for the industry and for us, and
13 I believe that when things get started you have a
14 tremendous amount of information. I believe we are
15 convergent in what is important and what needs to be
16 looked at, and I think our processes that are in place
17 will allow us to do a very good job of selecting where
18 we put our resources.

19 It won't be perfect, but I think it will go
20 forward, and so I think we'll be going in that
21 direction.

22 Dr. Kress, a quick thing in here -- I'm
23 getting a little technical in here, but I can't resist.
24 You put the statement in here, CDF and LERF are
25 insufficient acceptance criteria. Of course, that is
26 taken by itself. It's kind of, you know, a very
27 incomplete statement once you complete it with the

1 additional, you know, components of trying to get
2 frequency in between.

3 However, once you get into summation, I get
4 concerned. You can't add all of these frequencies
5 together without a weighting factor, and what is going
6 to be your weighting factor once you start summing them?

7 DR. KRESS: Well --

8 COMMISSIONER DIAZ: Because, you know, I
9 mean, the frequencies by themselves, of course, is not
10 the issue.

11 DR. KRESS: Well, one weighting factor --
12 one thinks of that is the standard risk aversion type
13 thing. Once you get down to the high consequences, you
14 want to weigh the frequencies a little more. I have a
15 good concept for how you would weight the various
16 frequencies. Of course, you're not as concerned about
17 the very frequent ones that don't result in much
18 consequences as much as you would for the low
19 frequencies.

20 You wouldn't, I think, want to think about
21 a risk aversion concept. I don't have a suggestion on
22 what that --

23 COMMISSIONER DIAZ: But you do believe that
24 before we start summing, you know, frequencies, the
25 high, low, that they have to be weighted?

26 DR. KRESS: Yes. Yes, I certainly would
27 think --

1 COMMISSIONER DIAZ: All right. Okay.

2 DR. KRESS: -- a weighting would be
3 appropriate.

4 COMMISSIONER DIAZ: Okay. All right.
5 Thank you. That's an important thing.

6 Mr. Fertel, I wish we had a couple of hours
7 to get into some of my favorite subjects -- ITAAC. But
8 just to touch on it, if -- you know, I used to think of
9 quality assurance as a very encompassing thing, you
10 know. That it's something that probably applies more
11 than to structures, systems, and components, and, you
12 know, the quality of the programs and itself -- the
13 program itself has all of those things.

14 If you have a quality assurance program
15 that is broad in concept, couldn't it be applied to the
16 quality of the programs that you're going to have in
17 place from the very beginning?

18 MR. FERTEL: Sure. I would think, in
19 essence, but I'm not sure whether it's an Appendix B
20 requirement as much as a culture of quality at the
21 sites.

22 COMMISSIONER DIAZ: And shouldn't that, you
23 know, tied in with the fact that we have additional, you
24 know, inspections and, you know, enforcement if you want
25 to, shouldn't the combination of that be an acceptable
26 process to get -- not to have to do programmatic ITAACs
27 on every concern?

1 MR. FERTEL: I think so. I think that's
2 exactly how you're looking at the 103 operating
3 plants --

4 COMMISSIONER DIAZ: All right.

5 MR. FERTEL: -- in that philosophy,
6 Commissioner, and I think that's the same way you've
7 licensed the 103 at the operating license stage.

8 COMMISSIONER DIAZ: Okay.

9 MR. FERTEL: So I would say yes.

10 COMMISSIONER DIAZ: Okay. All right.

11 And, Mr. Riccio, I wish I had some
12 viewgraphs that I have about cost overruns, and so
13 forth. By the way, I'm firmly convinced that, yes,
14 everything had an impact on the cost overrun. But
15 primarily, if you look at the data, it was the fact that
16 there was double digit inflation and double, you know,
17 digit, you know, interest rates.

18 That had a tremendous to do -- because it
19 is actually -- it's called a time feedback loop. What
20 it did it delayed the construction, which you pay more
21 for it, which actually then people have more time to
22 look at it, so more issues came out.

23 The NRC was not precisely the most
24 effective and efficient mode of operation. I mean,
25 everything contributed, but the main contributing factor
26 is actually the fact that we had a tremendous period

1 with very high interest rates, and that created the cost
2 -- it complicated things.

3 You know, public participation was there --
4 a factor, but I think it was a valuable exercise. I
5 think what the Commission is trying to do -- and I'd
6 like your comments on it -- is really avoid abuses by
7 anyone, by anyone, not -- you know, the industry, us
8 ourselves are accountable, and the public, trying to
9 make it into a very, very accountable process, not only
10 equitable and fair but an accountable process. Would
11 you like to comment on that?

12 MR. RICCIO: Just that in the first go-
13 round, I don't believe anyone was abusing the process.
14 In fact, industry has used the example of Seabrook and
15 Shoreham as the -- you know, as the shining lights about
16 public participation tied up the process.

17 In fact, the public attempted to raise the
18 emergency planning issues that held up those licenses
19 early on in the process and were shut down by the NRC.
20 I think addressing some of these things in the early
21 site permit process can be valuable. We can address
22 some of them early on.

23 I was just -- I didn't like seeing my
24 rights to hearings being stripped from me.

25 COMMISSIONER DIAZ: They have not -- they
26 have not been.

1 MR. RICCIO: They were. They were. And,
2 in fact, that's why we sued you. And, I mean, in fact,
3 we were so right that Clarence Thomas even agreed with
4 us. Unfortunately, that's when, then, the House and the
5 Senate got involved and rewrote the --

6 COMMISSIONER McGAFFIGAN: All those evil
7 Democrats.

8 (Laughter.)

9 COMMISSIONER DIAZ: All right. Okay.
10 Thank you.

11 Mr. Grecheck, just to underscore, you know,
12 something that everybody has been saying, I'd like your
13 comments again on it. This is a two-way street. For us
14 to be efficient, we need to have the information very
15 early and the staff make that comment.

16 And, you know, the earlier that we know
17 which way you're going, the more focused we can get in
18 our programs. And there is no doubt about it, you know,
19 we are -- we have restrictions on manpower and
20 resources, and sometimes it takes quite a bit of work to
21 get our budget changed. And it's not as easy as it
22 sounds.

23 And, of course, if we change the budget,
24 then our friends in the industry tend to complain about
25 it. And so it -- the efficiencies are going to be
26 resolved by focusing the resources on what is really
27 most important, and I think we can do that.

1 But is the industry getting closer now that
2 there seems to be, you know -- natural selection has
3 taken place. And the staff probably already alluded to
4 it when I asked the question on lead time. You know, it
5 was very clear, you got lead times of two or three
6 years. That tells you what can be billed.

7 You've got lead time of five years, and we
8 know that when research is involved these lead times
9 could, you know, not -- not talking about our
10 research --

11 (Laughter.)

12 -- researchers in general. You know,
13 having been there, you know, it could be five, could be
14 six, could be seven. And, therefore, do you think that
15 natural selections has already taken place?

16 MR. GRECHECK: Yes, I think there is
17 natural selection occurring. You know, what we've seen
18 happen over the last several months with people deciding
19 that they're going to continue or not continue is
20 certainly a part of that.

21 On the other hand, I think one of the
22 things that happens with natural selection is that you
23 get diversity. And when you see opportunities there,
24 then I think we're also seeing some additional
25 diversity. We're actually seeing some new entrants into
26 the pool now that perhaps a year ago we didn't expect.

1 But, obviously, when we talk to those
2 folks, we say, "Well, okay, now you tell me how you're
3 going to make the licensing process work, if you're
4 getting into this process at this point," and that's
5 something that they need to discuss.

6 I think selection, for it to work, needs to
7 be based on facts rather than speculation. So as more
8 facts are developed, then that makes the selection
9 process move along. And as that moves along, then that
10 makes it easier to make decisions.

11 I think all I can say at this point is that
12 I think we are certainly much more knowledgeable about
13 what our criteria for a successful project would be
14 today than we were a year ago. I think that ESP and
15 just getting the staff engaged on real licensing
16 activities is important, because once we start
17 establishing the framework of how we're going to do
18 these things, then it will establish additional
19 assurance on both the staff's part and industry's part
20 as to, you know, what is this going to look like? What
21 are the resources available? What are the problems?

22 So it's happening, but it's probably not
23 happening fast enough for any of us. But, you know,
24 we'll continue to work with the Commission to help it
25 move along.

26 COMMISSIONER DIAZ: Well, I want to assure
27 you I'm not claiming to speak for my fellow

1 Commissioners, but we are very -- all concerned with the
2 fact that we need to be responsive to whatever needs the
3 country has and whatever they arrive -- and that this is
4 an issue that will continue to consume us.

5 I'm just about finished, unless
6 Commissioner McGaffigan has --

7 COMMISSIONER McGAFFIGAN: There's just one
8 last question I had. Do we need a standard review plan
9 for the early site permits and for the call when we get
10 to it? I mean, you all are saying there's guidance all
11 over the place, and that some of it's out of date, some
12 of it refers to codes that are no longer up to date or
13 are totally outdated. Do we need to have, by the time
14 you all are applying a year from now, at least the
15 beginnings of a draft standard review plan for ESPs?

16 MR. GRECHECK: I would say that if we had
17 an SRP a year from now, then we would have lost the
18 opportunity to work with the staff for this whole
19 process. You know, the application -- the submittal of
20 the application ought to be the end of a data-gathering
21 and data accumulations point, which we need to work with
22 the staff to get to that point.

23 I'm not sure that getting an -- and, again,
24 this is just my perspective. I'm not sure that issuing
25 an SRP before anyone has ever seen an application --

26 COMMISSIONER McGAFFIGAN: So you want to
27 wait until after the --

1 MR. GRECHECK: I think that part of the
2 process will be to develop it.

3 COMMISSIONER McGAFFIGAN: So at the end of
4 the initial tripartheid application, that's the way you
5 want us to think about it --

6 MR. GRECHECK: I think it would be a good
7 opportunity.

8 COMMISSIONER McGAFFIGAN: But at the end of
9 the tripartheid application process, an SRP will
10 naturally emerge.

11 MR. GRECHECK: I think so.

12 MR. FERTEL: I think I would feel exactly
13 the same way. I think that the learning experience in
14 going through that will allow a much better document to
15 come out, rather than everybody freezing in space trying
16 to do it in the abstract absent the interactions and the
17 applications.

18 COMMISSIONER McGAFFIGAN: And I'll note
19 that that, of course, bolsters your case for fees being
20 reduced because there will be a generic --

21 MR. RICCIO: And not to be contrary --

22 (Laughter.)

23 -- but it would seem that at least an SRP
24 would at least clear up some of the questions that
25 already exist about the quality and pedigree of some of
26 the data.

1 What I was picking up from some of your
2 meetings, there -- the industry has collected a lot of
3 data that didn't meet the requirements of Appendix B.
4 And there is a question about whether -- how that's
5 going to be used in this process, and perhaps we can
6 clear that up before these gentlemen come forward with
7 their tripartheid plan.

8 MR. FERTEL: We agree with Jim on clearing
9 it up before they file, and that's actually what's going
10 on now in meetings that Jim is certainly welcome to
11 attend, because they're all public meetings. But we'd
12 still say that the SRP is probably better put together
13 as there's hands-on experience by the staff in going
14 through this process.

15 COMMISSIONER DIAZ: Thank you.

16 I think before I close, I think I -- I
17 really have to put for the record a comment on something
18 that Mr. Riccio said regarding nuclear powerplants being
19 terrorist targets. I want to reassure you and the
20 public that there has been no credible threats against
21 any nuclear powerplants in this country. Okay?

22 I would love to have you come over to my
23 office and talk about it.

24 MR. RICCIO: I'd probably have to get a
25 security clearance.

26 COMMISSIONER DIAZ: You might not. You
27 might not. You might not.

1 Again, I want to thank the staff for a very
2 informative meeting. I think that there is a lot of
3 information that has been assembled. Most of it is
4 going to be used shortly against us, I think. And we'll
5 be ready for it.

6 I want to thank our participants for
7 coming; we appreciate it.

8 Have a very good day. And without anything
9 else, we are adjourned.

10 (Whereupon, at 12:20 p.m., the proceedings
11 in the foregoing matter were adjourned.)

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26