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UNITED STATES NUCLEAR REGULATORY COMMISSION'S
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

June 1, 2006

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This transcript has not been reviewed, corrected and edited and it may contain inaccuracies.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

533rd MEETING

+ + + + +

THURSDAY, JUNE 1, 2006

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ROCKVILLE, MARYLAND

The Advisory Committee met at 8:30 a.m. in
Room T2B3 of 2 White Flint North, Rockville, Maryland,
Graham Wallis, Chairman, presiding.

PRESENT:

GRAHAM B. WALLIS	Chairman
WILLIAM J. SHACK	Vice Chairman
GEORGE E. APOSTOLAKIS	Member
J. SAM ARMIJO	Member
MARIO V. BONACA	Member
RICHARD DENNING	Member
DANA A. POWERS	Member
OTTO C. MAYNARD	Member
THOMAS S. KRESS	Member
JOHN D. SIEBER	Member At Large
SAM DURAISWAMY	Designated Federal Official

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8	Briefing by and discussions with the	6
9	Representatives of the NRC staff regarding	
10	activities associated with the licensing	
11	of new reactors; early site permits; and	
12	combined license applications, as well as	
13	the related schedule and milestones.	
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P R O C E E D I N G S

Time: 8:31 a.m.

CHAIRMAN WALLIS: Good morning. The meeting will now come to order. This is the second day of the 533rd meeting of the Advisory Committee on Reactor Safeguards. During today's meeting the Committee will consider the following: Overview of new reactor licensing activities; subcommittee report on the Monticello license renewal application; status report on the quality assessment of selected NRC research projects; future ACRS activities/report of the Planning and Procedures Subcommittee; reconciliation of ACRS comments and recommendations; and the preparation of ACRS reports.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Mr. Sam Duraiswamy is the Designated Federal Official for the initial portion of the meeting.

We have received no written comments or requests for time to make oral statements from members of the public regarding today's session.

A transcript of a portion of the meeting is being kept, and it is requested that the speakers use one of the microphones, identify themselves, and

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1 speak with sufficient clarity and volume so that they
2 can be readily heard.

3 Before we proceed with the meeting, I
4 would like to recognize that today is the last day
5 that Ashok is going to be with us. He has been very
6 helpful in his very, very broad experience on many
7 matters, and in fact, we may even have to draw on that
8 today before we finish. Thank you very much for all
9 your help, Ashok.

10 (Applause.)

11 CHAIRMAN WALLIS: The first item on the
12 agenda is listed in the agenda here as the Overview of
13 New Reactor Licensing Activities. I note that on the
14 screen we have a much more dramatic title, which is
15 called "Challenges and Strategies." So we are looking
16 forward to suitable drama. I notice there are some
17 figures here that look dramatic.

18 So without more ado, I will hand over to
19 Tom Kress to lead us through this one.

20 MEMBER KRESS: Thank you, Mr. Chairman.
21 I think you will find this a most interesting session
22 and useful. The staff is attempting to make itself
23 more effective in the whole shebang of license
24 certification, ESB, COL, updating the REG GUIDES and
25 construction and inspection permits, and their

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1 approach to this has a name. It is called the design
2 centered approach.

3 They are going to tell us what that is,
4 going to give us schedules, resources, manpower needs,
5 and I think this is just a briefing. So if you've got
6 anything to -- feedback, do it today, because there is
7 no letter involved. But I think this will be very
8 useful for us, because it will help us decide where we
9 can be most useful in the process and how to best
10 accommodate the staff's needs for the scheduling.

11 So with that almost non-introduction, I
12 will turn it over to, I guess, Bill Beckner. First,
13 tell us what's wrong with your hand.

14 MR. BECKNER: This is not the result of my
15 last meeting here. No, this is a bite graft,
16 unfortunately. It's coming off, hopefully next week
17 to see how it's doing. So I hope it stays off.

18 I am Bill Beckner. I am the Director of
19 the -- Deputy Director of the Division of New Reactor
20 Licensing. Like Tom said, this is what I am calling
21 an informational briefing. We are really not asking
22 you to review anything or to approve anything, but as
23 usual, we look for your feedback.

24 In fact, that is really what we are
25 looking for here. I'll tell you, I don't think we

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1 have enough material to go for the full two and a half
2 hours, two hours and 15 minutes, but the intent is get
3 some dialogue going.

4 MEMBER KRESS: We'll take care of that.

5 MR. BECKNER: I figured we could take a
6 longer break, but I wasn't looking forward to that.

7 What we would like to do is to try to let
8 you know just what we see coming over the next couple
9 of years as far as new reactor licensing activities,
10 combined license applications, COLs, design certs and
11 ESPs and so forth; but probably, more important is to
12 let you know how we are -- what we are doing to try to
13 get ready for that wave.

14 It is important, because it is going to --
15 and the reason we are talking to you is it is going to
16 impact you as much as it impacts the rest of the
17 agency. It is going to be a big impact.

18 We want some excitement here. We've
19 talked of hurricanes before. I am going to use the
20 tsunami analogy. Some people find that offensive
21 because of what happened over in Indonesia, but I
22 think it is a very good analogy in a couple of
23 different ways.

24 First of all, we don't know if --

25 CHAIRMAN WALLIS: A tsunami goes away.

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1 This one keeps coming.

2 MR. BECKNER: Well, let me go to my
3 analogy. Okay? First of all, we don't know exactly
4 how big this wave is going to be. We think we know.
5 We don't know the exact timing. Again, we think we
6 know, and there's some people out there saying, well,
7 is it even going to come? What happens if it doesn't
8 materialize? However, I think what is clear is it is
9 big enough, it is significant enough that we really
10 cannot afford to ignore it at this point in time; and
11 if it does come, which we do expect it to come, if we
12 are not ready, it can overwhelm us.

13 Now, Graham, with your comment, I really
14 look -- Right now is sort of the calm before the
15 storm. If you want to get back to my tsunami analogy,
16 what's happened is the water has receded from the
17 beach. That happens before a major tsunami, and
18 everyone is on the beach going where's the water.

19 We don't want to get stuck on the beach
20 wondering where the water is. We want to get ready
21 for it. So that is what we are going to talk about
22 today.

23 Okay. I think that is probably enough of
24 the tsunami analogy. Like I said, the intent is to
25 try to get some dialogue going, obviously not come to

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1 any conclusions here, but get you thinking about how
2 you may best help us address this wave of activity
3 that we are seeing.

4 With that, let me just tell you who we
5 have here so you will know who is going to be talking.
6 First of all, John Tappert is our Branch Chief for our
7 Planning and Scheduling Branch, and next to him is
8 Phil Ray who is our Acting Branch Chief for what we
9 call our New Reactor Infrastructure and Guidance
10 Development Branch.

11 Later on, Stu Richard is going to come
12 here. Stu is Deputy Division Director for Inspection
13 and Regional Support, and he will talk a little bit
14 about some of the activities getting ready for
15 inspection of this construction.

16 So we have some people. In the audience,
17 too, to give you an idea of the type of people here
18 for your questions, of course, we have Jerry Wilson.
19 I think, if there is a new reactor question that he
20 can answer, there is no answer.

21 We have Chris Nolan. Normally, the
22 Committee does not get into the environmental side of
23 the review, but Chris is here. He is our
24 Environmental Branch Chief, in case there are any
25 questions on that side of the thing; and we have Steve

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1 Bloom, a senior PM for our pre-application with COLs,
2 and Kuer Cozens if you want to know about what we are
3 doing as far as planning, trying to plan these
4 multiple submittals with multiple reviewers and so
5 forth.

6 So with that, unless you have any other
7 questions or comments, I can turn this over to --
8 John, are you going first? Okay.

9 MR. TAPPERT: Good morning. As Bill said,
10 my name is John Tappert, and I am the Chief of the
11 Planning and Scheduling Branch in the Division of New
12 Reactor Licensing. That division has existed for a
13 little over six months, and we already had our first
14 reorganization creating my branch last month. So it
15 is definitely a dynamic environment.

16 I am going to just spend the next few
17 minutes just kind of talking about the workload that
18 we are projecting over the next couple of years. Then
19 after that, Phil is going to talk about our design
20 centered review approach, which is really the
21 cornerstone to our success strategy moving forward.
22 He is also going to talk about what we are doing about
23 developing our key regulatory infrastructure, the
24 standard review plan, and Reg Guides, and in about an
25 hour, I guess, we are going to have Stu Richards come

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1 in to talk to us about the construction inspection
2 program.

3 This is kind of our standard cartoon for
4 the Part 52 process, which I'm sure you are familiar
5 with. It's got our different components, our product
6 lines, the OSI permits the design certifications and
7 the combined licenses.

8 We have had some experience with the
9 design certification process. We are doing our first
10 OSI permits even as we speak, and we've yet to do our
11 first combined license. But in 2008 we expect to be
12 doing multiple reviews of each of these
13 simultaneously.

14 Now as you know, the Part 52 is a flexible
15 rule, and the combined license can reference a design
16 certification or an early site permit or both or
17 neither. But currently the project is that all of the
18 combined licenses that we are aware of will be
19 referencing a certified design. Regarding the early
20 site permits, it's kind of a mixed bag. We are
21 looking at 13 combined licenses right now, and for
22 those we will be referencing an early site permit.

23 Now for people who like tables, this is
24 the table for the forecast, and the next slide is
25 really the more graphical depiction. This is the work

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1 that we forecast based on letters which have been
2 submitted to the Commission. You know, what a
3 difference a year can make.

4 If we were giving this presentation last
5 year, you would have seen three combined licenses, a
6 couple of early site permits and a design
7 certification. But after the Energy Policy Act was
8 passed last summer, there was a significant uptick in
9 interest, to put it mildly, and currently we have 13
10 combined licenses on this chart, and there is hardly
11 a week that goes by that we are not seeing or hearing
12 rumors of another pending announcement.

13 CHAIRMAN WALLIS: I notice they all seem
14 to take the same length of time. As you get
15 experience, you would think you might be able to do
16 things quicker.

17 MR. TAPPERT: That would be the
18 expectation going forward, but if you kind of look at
19 this chart, one of the big challenges that we have is
20 the near-simultaneous arrival of many of these
21 applications.

22 Phil is going to talk to you about the
23 designed centered approach. Part of that concept is
24 that you have these subsequent reviews kind of
25 shadowing the lead review. So even though it should

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1 be less resources involved in those subsequent
2 reviews, it is going to be kind of constrained in time
3 to kind of moving in lock step with the first one.

4 CHAIRMAN WALLIS: You ought to give some
5 sort of priority to people who can get in early, so
6 you can stagger things a bit more.

7 MR. TAPPERT: If we had that choice, I
8 think we would opt for it, but I think it would be a
9 lot easier for us if we could stagger these reviews,
10 but that doesn't seem to be an option for us.

11 MEMBER APOSTOLAKIS: So what you are
12 showing here is companies that have shown interest in
13 the particular design?

14 MR. TAPPERT: That's correct.

15 MEMBER APOSTOLAKIS: But it says here you
16 start going out starting in 2008 for ESBWR, I guess.
17 How do you know? Do you have letters already?

18 MR. TAPPERT: Yes. They have sent us a
19 letter, and they say we intend to build an ESBWR at
20 Greenville.

21 MEMBER APOSTOLAKIS: I see.

22 MR. TAPPERT: And that's so you kind of
23 see how this chart is built on the design centers with
24 the AP1000s and the different things. You know, you
25 wanted drama. This is the punchline for the

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1 challenge. Okay? And it's been called different
2 things. Bill just called it a tsunami. It's been
3 called a tidal wave. Chairman Diaz calls it a bow
4 wave to make it sound less ominous. Commissioner
5 Merrifield calls it the second bandwagon. But no
6 matter what you call it, it is going to be an awful
7 lot of work for a lot of people.

8 CHAIRMAN WALLIS: It's a shock wave.

9 MEMBER APOSTOLAKIS: We have to find a
10 name ourselves.

11 MEMBER MAYNARD: The intent is basically
12 to have like a lead plant or so in each one of these,
13 where that would be review of that design. The other,
14 you would only be reviewing deltas to that.

15 MR. TAPPERT: Yes, sir.

16 MEMBER MAYNARD: So if the plants truly
17 are a standard design and there is very little site
18 specific items, it's going to be limited by the lead
19 plant review. That's the one that is going to be
20 reviewing all aspects of it.

21 MR. TAPPERT: That's kind of our strategy,
22 and take advantage of as much commonality as possible.
23 Now some things aren't going to be common, the local
24 meteorology, seismology, all that sort of stuff. But
25 to the extent that the plant is going to be as near

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1 identical as possible, we want to take advantage of
2 that in order to expedite our reviews.

3 MEMBER DENNING: How does commitment to
4 purchase enter into this? Will these -- Is everything
5 from 2007 on really predicated on the assumption there
6 will be a commitment to purchase or would they
7 actually go into this process without having made a
8 commitment to purchase?

9 MR. TAPPERT: That -- We are basically
10 looking at the letters of intent to us, you know, for
11 the licensing. Now whether -- I guess the answer is
12 we are not looking at the intent to purchase at this
13 point.

14 MEMBER DENNING: But do you have a
15 feeling? Would they actually -- Would Duke proceed
16 with that process, for example, without -- before that
17 point on 2007 making a commitment to purchase? They
18 would actually invest that prior to a commitment to
19 purchase, you think?

20 MR. TAPPERT: Potentially. It could be a
21 mixed bag. I don't know. I mean, some of these long
22 lead procurement items -- you know, the vessels they
23 have to order well in advance. If you look at the
24 Energy Policy Act, there's a number of economic
25 incentives for utilities to not only go through the

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1 license process but actually put megawatts on a grid.

2 So in order to get some of those economic
3 incentives, they need to submit their application by
4 2008, begin construction by 2014, and then be
5 producing by 2021. So those are kind of the gates
6 they have to hit on the way through.

7 MR. BECKNER: Rich, this is Bill Beckner.
8 Just one comment, I guess, on both sides of that coin.
9 First of all, a number of these are dual unit, and in
10 most cases probably only one unit would be built at a
11 time.

12 On the other side of the coin, though, is
13 just about all these people that are up here are
14 looking to find some way to start the process before
15 the COL is granted. They are talking about ways to
16 get limited work authorizations. Of course, as Jerry
17 Wilson told you a few weeks ago, that is part of what
18 is going on in the rulemaking.

19 So we will have a pretty good idea of how
20 serious -- and of course, there's long lead
21 procurement that will have to occur. So whether we
22 know when we start the review how serious they are, we
23 will certainly know before the review is over just how
24 serious they are.

25 CHAIRMAN WALLIS: Now it must take them a

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1 year or so to prepare this application. So some of
2 these must have already got going.

3 MR. TAPPERT: Oh, yes. They are in the
4 development right now.

5 CHAIRMAN WALLIS: Right. And they are
6 presumably interacting with you folks.

7 MR. TAPPERT: Right.

8 CHAIRMAN WALLIS: They are doing that?

9 MR. TAPPERT: Yes, sir. And there's
10 workshops all the time where they are engaging with
11 these prospective applicants.

12 MEMBER BONACA: So it seems that they --
13 these licensees have already made a decision on what
14 design they are going to consider.

15 MR. TAPPERT: For the most part. All the
16 ones that are listed in the design center, they have
17 committed to go with that design.

18 MEMBER BONACA: And yet there hasn't been
19 -- I'm trying to understand the issue of -- commercial
20 issues. There hasn't been yet effective pricing of
21 the designs.

22 MEMBER SIEBER: You've only got one that's
23 approved. We don't know what negotiations are going
24 on.

25 MEMBER BONACA: Well, that's what I'm

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1 trying to understand.

2 MEMBER SHACK: I mean, I would just be
3 lining up a Japan steelworks to get my pressure
4 vessel.

5 MEMBER ARMIJO: I notice that there
6 doesn't seem to be much advantage to having a
7 certified design and a hearing completed as far as the
8 final schedule. They all look about the same.

9 For example, the top four there or top
10 five, they start with a design certification but not
11 an early site permit, if I understand. But the lowest
12 one, Southern Vogtle, has completed the ESP and the
13 design cert. Yet the process doesn't seem to gain any
14 advantage or schedule advantage.

15 MR. TAPPERT: Yes. This is for
16 communication purposes. Our model right now, our
17 scheduling run, does not appreciate any schedule
18 efficiencies for having an early site permit. I think
19 what you are going to buy is some issue preclusions in
20 doing some of that work earlier, and the actual
21 resources that are going to be involved in that review
22 will be somewhat less. But again, when you are taking
23 advantage of this design centered approach, and
24 Vogtle will be following whoever that lead reference
25 plant will be -- so they can't really finish before

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1 that first one finishes.

2 Now, you know, 2010-2011, people coming in
3 then, we will have experience to draw upon, and we can
4 decide what a more appropriate schedule will be.

5 MEMBER APOSTOLAKIS: Are you going to
6 address the issue of what licensing framework you are
7 going to use? As you know, there is this risk
8 informed licensing framework that is being developed.
9 Is that part of the list or is it something else?

10 MR. TAPPERT: I would say that is
11 something else at this point. This is predicated on
12 using the existing framework that we have.

13 MEMBER KRESS: These are all LWRs.

14 MR. TAPPERT: Right.

15 MEMBER KRESS: They could probably fit in.

16 MR. TAPPERT: Okay. So again, this is
17 going to be stressful on many facets of the agency, on
18 HR to help us recruit and train these new people, NRR
19 to put them in the staff, Admin to house them, OGC,
20 the licensing board, and the ACRS. It's going to be a
21 big impact on your workload, too.

22 CHAIRMAN WALLIS: For the EPR, it looks a
23 little bit awkward. You are going to have an
24 uncertified design, and you are going to, hopefully,
25 complete most of the review of the application before

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1 the design is certified. That sounds a little
2 awkward.

3 MR. RAY: I will discuss that when I get
4 to my part and how that would work.

5 CHAIRMAN WALLIS: Okay.

6 MR. TAPPERT: This next slide is kind of
7 a very crude depiction of the COL safety evaluation.
8 You should have also received a more detailed GANT
9 chart, which is kind of our first cut at a more
10 detailed model of how we are going to do that review.

11 Now we are letting a contract this week to
12 get some expertise in here to help us in handling the
13 model to go down to the SRP section for each of these
14 reviews, and then to integrate that over the entire--

15 CHAIRMAN WALLIS: So the ACRS part is
16 deliberately illegible. Is that it?

17 MR. TAPPERT: No, sir. There is no subtle
18 meaning there. We will have to pick a lighter shade
19 next time.

20 So we are going to try and create a
21 Microsoft project model which will integrate all of
22 the reviews that are going to be existing
23 simultaneously, and that is expected to be tens, even
24 hundreds of thousands of line items, and that is going
25 to help us try to identify those expertise pinch

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1 points or choke points and try to level out some of
2 those work peaks.

3 MEMBER APOSTOLAKIS: So these combined
4 license assumes that they are buying a certified
5 design and there is an early site permit?

6 MR. TAPPERT: It is assuming that it is
7 going to have a certified design. Some will have
8 early site permits, and some will not.

9 MEMBER APOSTOLAKIS: The time should be
10 different, I mean whether they have it or not.

11 CHAIRMAN WALLIS: Well, the way you
12 present it here, it almost looks like ACRS is the
13 limiting process, and we are active all the time, and
14 these other guys are only active some of the time.
15 That's probably not right.

16 MR. TAPPERT: That's why I said -- We do
17 need to adjust this side to lighten up the ACRS
18 shading and also show that these are simultaneous
19 processes, because different parts of the review are
20 going to be -- I mean, it's going to be going on
21 continuously. You will be having RAIs back and forth
22 as we go through the process.

23 One of the things I wanted to point out on
24 the GANT that you have in front of you: The nominal
25 schedule has three passes through the ACRS. Right?

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1 Once for the SER with open items. There will be a
2 supplement one, and then there will be a final
3 supplement.

4 If you just do the math, and if you have
5 a subcommittee and then a full Committee meeting for
6 each of those and you have 13 COLs and all these other
7 products, you are going to have over 100 meetings over
8 about a three-year period, just on new reactor
9 licensing.

10 CHAIRMAN WALLIS: Well, it's not "we."
11 It's whoever is the committee in two years time.

12 MR. TAPPERT: Yes, sir. But that's going
13 to be an awful lot of work.

14 CHAIRMAN WALLIS: It is very daunting,
15 actually, if this really happens.

16 MR. TAPPERT: And we have been talking to
17 the ACRS staff to see if there's other approaches
18 which might be more effective in you exercising your
19 oversight responsibilities and, hopefully, you can
20 take advantage of this design centered approach and do
21 some of the heavy lifting on the design certifications
22 and these lead reference plants, and then do kind of
23 a more focused, graded approach to the subsequent
24 reviews. So that dialogue is ongoing.

25 CHAIRMAN WALLIS: I would think the design

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1 certification is probably the major piece of work and,
2 once you are satisfied you've got a really good
3 design, then that's the key thing. Then there are
4 details with each particular plant, but they are less
5 involved -- have you got something which is going to
6 work, is safe and everything else.

7 MEMBER SHACK: Now is it envisioned when
8 the lead plant comes in and it does all the things
9 that are now only specified by ITAAC, that everybody
10 really will follow that design as a kind of a standard
11 package?

12 MR. TAPPERT: Conceptually, that's the
13 approach, that the design center will act as a group,
14 and that when that lead plant takes a position, that
15 everyone else will adopt it.

16 MEMBER APOSTOLAKIS: Can you elaborate a
17 little bit on what you mean by design centered
18 approach and design center? You are assuming we know.

19 CHAIRMAN WALLIS: Well, we are not going
20 to have the old system with architect-engineers doing
21 all kinds of different things in different plants. I
22 think the AP1000 is designed so modules that come and
23 get put down and the whole thing is built, and there
24 is not much opportunity to change things around from
25 plant to plant. That's not the way they planned it to

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1 be.

2 MR. TAPPERT: We will quickly go through
3 the next slide here, and then we will get to --

4 There is a question on the design center
5 thing.

6 MR. RAY: Okay. Let me go on with mine,
7 since we are getting all the questions on our
8 strategy, basically, and the design centered approach.

9 The design centered approach will work,
10 first off, because we can maximize standardization.
11 First off, let me run through a couple of strategies,
12 and we will get right into the design centered
13 approach.

14 The designed centered approach is going to
15 work, because of the maximization of standardization
16 from the applicants as they come in. They pick their
17 design, and they are going to stick with them, and
18 they are going to discuss things and bring in
19 something that we can review.

20 All right. We are going to also do some
21 optimization with our review process. We are
22 currently doing some infrastructure development. We
23 are doing the -- updating the SRP. We are reviewing
24 Reg Guides and making sure that we have them up to
25 date.

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1 We are also doing detailed planning. As
2 you saw this chart in front of you, the GANT chart, we
3 are going through and talking to each of the division
4 -- or the branches and making sure that they are on
5 board with how long it takes to do these reviews and
6 what effort it is going to take and what people that
7 they need to do those reviews. John's group is doing
8 that.

9 Also, we are going to be having
10 preapplication reviews. We are going to get the
11 applicants in early to talk to them about what they
12 are going to be bringing in. We are also going to ask
13 them to submit topical reports on things that are
14 generic that we can review in advance, and then they
15 can reference in their applications.

16 Also, we are going to be holding people
17 accountable, both us as the staff and also the
18 applicant. To make all of this work, they've got to
19 meet these schedules that we are putting. When we ask
20 for an REI, they've got to get it back to us in an
21 appropriate time. When we say that we are going to do
22 a review in an amount of time, we've got to make sure
23 that we get it done.

24 CHAIRMAN WALLIS: It would help if parts
25 of the application were identical, but now since

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1 you've got these plants all working independently,
2 presumably simultaneously, that's not going to happen,
3 is it?

4 MR. RAY: Well, we have asked them to work
5 together. We have --

6 CHAIRMAN WALLIS: You have asked them to
7 work together?

8 MR. RAY: Yes, we have. We have had some
9 public meetings where we have had the applicants
10 together. We have explained the design centered
11 approach. They are forming --

12 CHAIRMAN WALLIS: They could all submit an
13 application that looked very, very much the same.

14 MR. RAY: Yes, they could.

15 CHAIRMAN WALLIS: Which should be very
16 easy, and once you've done one, do all the others.

17 MR. RAY: Yes, and that is the concept
18 that we are trying to use. But also, we are going to
19 have to increase our qualification of our resources.
20 We have to hire a lot of staff just because of the
21 magnitude. We are also going to be using contractors,
22 and we are going to use contractors in the typical way
23 we have used them before, and we are going to come up
24 with new, innovative ways of using them.

25 Now I'm going to jump right into the

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1 design centered approach. Now as I said, we have
2 talked to the licensees, and we also have a RIS that
3 is going out that basically describes this design
4 centered approach.

5 It won't be the first time that the
6 applicants or the potential applicants have heard
7 this. They have heard this earlier before in public
8 meetings that we have had. But we have asked them to
9 form these groups, like the AP1000. It would include
10 the vendor and all of the people that plan on having -
11 - or submitting an application.

12 We also have the ESBWR --

13 MEMBER SHACK: Have they agreed to do
14 this?

15 MR. RAY: Yes, they have agreed to do
16 this. They have been -- Beg your pardon?

17 MEMBER ARMIJO: It is in their interest to
18 do it.

19 MR. RAY: Oh, yes, it is. And if they are
20 not going to fit in this, we are not going to have
21 time to review it. So we will get around to them
22 sometime, if they are not going to play the game.

23 So we are going to have these different
24 groups, and also as you saw in the earlier chart, we
25 have an AP1000 -- I mean, a ABWR group as well. It

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1 has one in it so far, but that may multiple as time
2 goes by.

3 Now as you see, we also have a design
4 certification in the ESBWR going on at the same time.
5 In my next slide, I will explain how that is going to
6 work.

7 MEMBER APOSTOLAKIS: Has anyone shown any
8 interest in the PBMR?

9 MR. RAY: No, not in this time frame
10 anyway.

11 All right. Now one of the key concepts
12 besides the standardization is the one
13 decision/multiple application. If we take one like
14 the ESBWR that is going to have a design certification
15 ongoing at the same time -- and that's where I've got
16 that DC review up there; it's the design certification
17 -- we are going to break it down into the specific
18 areas that we review it by, like the standard review
19 plan, and they are going to -- The staff is going to
20 be reviewing it and making decisions on it.

21 Now when they come in for a license, those
22 sections that we review will be exactly the same or
23 with slight differences, and we can apply that
24 decision down into the applications. If they are
25 identical or verbatim, no problem. We have the

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1 decision. If there is a difference, we get to review
2 that slight difference, and then we will have our
3 decision.

4 Then all of these subsequent applications
5 that we have asked them to make the same, we will be
6 able to apply those all the way down.

7 Now there are about 70 percent of these
8 that are related to things that can be propagated down
9 with the same kinds of decisions. Then we have site
10 specific things that won't be, but we have asked the
11 applicants to come in with standard methods. We have
12 asked them to come in with standard terminologies.

13 If they come in with something being
14 called a widget in the design certification and they
15 call it a widget all the way through, that helps us.
16 We don't have to go back and figure out what they
17 wanted or what they meant. We can apply it all the
18 way through.

19 Then when we get to the rulemaking in the
20 design certification, the Commission will be making
21 decisions, and once they have made a decision, we will
22 be able to apply those decisions appropriately down
23 through all of the applications.

24 Now if things change in the design
25 certification after they have submitted it, they will

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1 have to change their license application in alignment
2 with the design certification, so that they can follow
3 this same methodology.

4 Now if you will see that the license
5 applications are shifted over a little bit, that means
6 that we have to have the rulemaking completed, design
7 certification has to be done before we can grant the
8 license.

9 CHAIRMAN WALLIS: Now could you explain to
10 me why there is so much work, or if there is indeed so
11 much work in the bottom part. Once you've got this
12 design, once it is certified -- Isn't it just like
13 going out and buying a car? I mean, here the thing
14 works; you buy it. Is there a tremendous amount of
15 work associated with the COL part, and why is there?

16 MR. RAY: There is not going to be as much
17 work associated with the subsequent reviews, but we
18 are going along with the design certification. There
19 is a schedule that they are going to be maintaining,
20 and it takes time; and as we make those decisions, we
21 are going to apply those down.

22 The schedule can't change. We can't
23 shorten it --

24 CHAIRMAN WALLIS: What is it that you add?
25 What is it that you add to the COL stage which wasn't

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1 covered at the design certification review which is
2 going to take a lot of time?

3 MEMBER MAYNARD: The way I understand
4 this, this isn't representing the amount of work in
5 each one.

6 MR. RAY: No, it's not.

7 MEMBER MAYNARD: The COL would be a
8 significant effort. However, the schedule has to stay
9 the same consistent with the design.

10 CHAIRMAN WALLIS: What is it that has to
11 be added to the COL stage which has not been covered
12 at the design center? Maybe you can move some of the
13 stuff up into the design certification, which normally
14 would appear down below.

15 MR. RAY: Let me let Jerry Wilson --

16 CHAIRMAN WALLIS: Oh, you are going to
17 cover that later on?

18 MR. RAY: Let's let him discuss that.

19 MR. WILSON: This is Jerry Wilson. Let me
20 give you a quick answer.

21 If you look at the major review areas
22 needed to be covered for a combined license, one is
23 the design, and we have been talking about that.
24 Also, we have to do operational programs. We have to
25 review site suitability and the environmental impact.

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1 Those are the four major areas.

2 So environmental impact and the site
3 suitability are going to vary under all of those. We
4 talked about that. Most of them are not referencing
5 an early site permit, but they are referencing design
6 certification.

7 Now there are also operational programs.
8 There is an indication that these prospective
9 applicants are going to get together and try and
10 develop what you could loosely call standardized
11 operational programs. It remains to be seen how
12 successful that will be, but we are also hoping that
13 we will get some standardization effect from that, and
14 that will work out to be a more efficient review. But
15 once again, it remains to be seen as to how well they
16 can work together on that effort.

17 MEMBER SIEBER: Well, there are some
18 pretty big areas that aren't really covered in the
19 design review. For example, in an AP1000 the
20 instrument and control systems are not in there. Some
21 seismic size is not in there.

22 Are you trying to make an effort to
23 standardize the ITAAC stuff?

24 MR. BECKNER: Let me go on. If you had
25 what I would term a very complete design

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1 certification, very complete ESP, one would think that
2 to put them together into COL would be a minimal
3 activity covering the items that Jerry just covered.
4 However, in reality, as you point out, there are a
5 number of incompleteness. There's DACs and there's
6 instrumentation control and so forth.

7 Yes, we are working with the certification
8 holders to try to do some of this stuff up front and
9 to get it standardized, but I think what Dave Matthews
10 has called these gaps is one reason why this COL
11 process is larger than you might envision, if you had
12 a very complete design.

13 MEMBER SIEBER: I would think that it
14 would be important from the standpoint of efficiency
15 to standardize as much of this stuff that is not in
16 the standard design as you can. That is going to
17 require getting all these licensees or potential
18 licensees to agree, and some of the areas are pretty
19 sensitive where they like to have their own
20 philosophy, like control room design and things like
21 that.

22 MR. BECKNER: Absolutely. I think, as the
23 committee has already alluded to, the success of this
24 is really how serious the applicants take it, and
25 there is a big incentive. Everyone likes to do it

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1 their own way, but there is a big incentive to get
2 subsequent reviews done more efficiently and on time.

3 MR. WILSON: So if I could add on, just to
4 be responsive to your point. In the case of AP1000,
5 we are considering amending the design certification
6 to have Westinghouse do additional work that hadn't
7 been previously done, and have the staff review that.

8 There's two steps to that. First of all,
9 the Commission is considering as part of the Part 52
10 update rulemaking developing a process for being able
11 to amend a design certification to complete those open
12 areas such as you mentioned, and also we are
13 interacting with Westinghouse to try and review
14 information in that area in anticipation of that
15 process being developed.

16 So what we are discussing is speculative
17 at the moment, but we are hoping we will be able to do
18 something and get additional work done such that, when
19 all these applicants come in and reference AP1000,
20 that additional information will be approved and
21 standardized in that manner.

22 MEMBER SIEBER: I think that is going to
23 be difficult, even in the -- particularly in the
24 instrument and control area where the state of the art
25 is advancing so rapidly. By the time somebody does a

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1 control room design, an instrument loop design,
2 everything is obsolete. It's got about an 18-month --

3 MEMBER APOSTOLAKIS: The important thing,
4 I think, about these slides is not to think that there
5 is a horizontal time axis. If you think that way,
6 then it does make it -- It's just pieces of work.
7 Right? There is no time.

8 CHAIRMAN WALLIS: But I thought there was
9 a time axis.

10 MR. RAY: You can consider it a timeline.

11 MEMBER APOSTOLAKIS: Then I think Graham's
12 question is very good. I mean, why --

13 MR. RAY: You can consider a timeline, but
14 you can't consider the level of effort that's being
15 taken on each one of them, because what sets the
16 timeline is the design certification and finalizing
17 the rule.

18 Once the rule is finalized, in probably a
19 very short period of time after that, that any changes
20 needed to be made to the application and our final
21 write-ups and the issuing the license can -- The
22 effort would be small.

23 CHAIRMAN WALLIS: But, obviously, the most
24 you can clone from one of these letters to the next,
25 the better off you are.

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1 MR. RAY: Yes. So we minimize the
2 difference in the reviews.

3 MEMBER APOSTOLAKIS: Isn't that rather
4 like license renewal? I mean the first topic took a
5 long time. Then they developed GALL, and now it's --

6 MR. RAY: Now all of these can be pretty
7 much --

8 MEMBER APOSTOLAKIS: -- difficult process.

9 MR. RAY: The ones that we've set up here
10 are for the first wave of the tsunami, and as we know,
11 there's always going to be another wave to the
12 tsunami. And our Chairman has said that we will
13 shorten that time on that next cycle, and we expect
14 that we would be able to do that, since we will have
15 all of this experience, and all of the applicants will
16 see how well this worked.

17 MR. TAPPERT: But there is going to be
18 some elements of the review in which you are not going
19 to be able to follow this. I mean, some things are
20 just unique to the site. When you talk about cooling
21 water designs, ultimate heat sinks, off-site power,
22 you know, the Met. data stuff, and the environmental
23 reviews.

24 So there's going to be a lot of
25 commonality, but it is not going to be 100 percent, by

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1 any stretch of the imagination.

2 MR. RAY: Now from our detailed modeling,
3 we have been able to go through and make some
4 predictions on what kind of savings we might have by
5 doing this design centered approach. If you look at
6 the sort of reddish colored bars, you see that as we
7 go through the process of our work, the FTE necessary
8 to do those reviews continues to go up, and every time
9 you add one, it just continues to add up on the top.

10 Using the design centered approach, we
11 have in the blue, it will peak off and starting to
12 come down just because of the savings in those things
13 of standardization and using that one
14 decision/multiple applications.

15 Now what I want to do now is go over some
16 of the key infrastructure --

17 MEMBER DENNING: Incidentally, what was
18 the ordinate on that.

19 MR. RAY: FTE.

20 CHAIRMAN WALLIS: We are going to think of
21 the ACRS having a similar picture, maybe.

22 MR. RAY: Or maybe you will be able to
23 apply the design centered approach more effectively
24 than we do, and you will make choice decisions and get
25 through the process better.

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1 MEMBER KRESS: You're going to have to add
2 something like 250 more FTEs?

3 MR. RAY: Yes, sir. And this is direct
4 work. This is not all of our supervision and
5 overhead, secretaries, LAs and all of that. This is
6 just actually to do the work.

7 MEMBER APOSTOLAKIS: But it does include
8 contractors?

9 MR. RAY: It would include the contractors
10 that we would -- That particular graph was just in-
11 house staff, but we have a similar one for
12 contractors, too.

13 CHAIRMAN WALLIS: You could save an awful
14 lot of ACRS time by being very well prepared.

15 MR. RAY: We will do our best.

16 Okay, I would like to go through some of
17 the sort of infrastructure things we are doing,
18 meaning our procedures and guidelines. We are
19 currently ongoing with the development of our Reg
20 Guide for the COL, basically, the standard content and
21 format.

22 We are also updating our standard review
23 plan, and we are developing the construction
24 inspection program that you are going to hear about in
25 a few minutes.

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1 I would like to go on over to the next one
2 and talk about our draft Guide that we have going on
3 right now. The objective of it is to basically tell
4 the potential applicants what we are going to expect
5 in the application, as detailed as possible, so that
6 they understand this is what we want if you are
7 submitting a Part 52 license.

8 Now this thing is quite large. It is
9 about 500 pages is what we are expecting it to be when
10 we get finished. We have broken it down into four
11 major parts.

12 We have the standard form and content to
13 this modeled after the Reg. Guide 1.70 as a standard
14 content for the safety analysis report and is very
15 similar to the standard design information that you
16 have seen.

17 Also, then we are going to have the
18 additional information that you need inside it. The
19 things that might be different if you were referencing
20 a certified design or you are referencing an early
21 site permit or not, that's what will be in our second
22 section.

23 Then in the application, we've got -- let
24 me see here. We got supplemental information that
25 would be in the additional information part, such as

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1 the probabilistic risk assessment, the ITAAC and
2 environmental report.

3 Then the next section is the part with the
4 referencing the certified design or not.

5 MEMBER APOSTOLAKIS: The applicants -- I
6 mean during the certification process, we are looking
7 at the first PRA of the design. We will expect at
8 this stage to have a PRA that reflects the actual plan
9 with all the testing schemes and operations and all
10 that?

11 MR. TAPPERT: Let's go to Jerry to hear
12 the particulars on that.

13 MR. WILSON: Let's assume that the
14 combined license applicant references a certified
15 design. So they will reference that PRA that you just
16 described, but we would expect then to supplement that
17 PRA to cover the site specific design features that
18 weren't described in the original design
19 certification.

20 That is sufficient for us to complete the
21 combined license review. Now whether there will be a
22 subsequent update to the PRA after construction is
23 complete is under consideration right now as part of
24 the Part 52 update rulemaking, and that is to be
25 determined.

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1 MEMBER APOSTOLAKIS: And is that PRA going
2 to be a Level 3 PRA?

3 MR. WILSON: Well, thanks for asking that
4 controversial question. Let me say, so far, if you
5 look back at the design certification reviews, we've
6 had Level 3 PRAs submitted. For example, in AP1000
7 the staff and the Committee reviewed a Level 3 PRA.

8 We are in the process of developing
9 guidance for future submittals in this draft Reg.
10 Guide, and we are going to speak to details of what
11 you need in that PRA, and the Committee is going to be
12 given an opportunity to look at that guidance when the
13 draft guide comes to the Committee for review.

14 MEMBER APOSTOLAKIS: But you are saying
15 that, even at the COL stage, the PRA will not be
16 complete. You will add just the stuff about the site
17 specific. I mean, we are developing SPAR models for
18 existing reactors. So I expect that at some point we
19 are going to have SPAR models for the new reactors,
20 but that will happen at sometime in the future when we
21 have time or there will be some schedule as to when to
22 do that.

23 Another question is something in mind that
24 is relevant. To what extent does the applicant know
25 during the COL stage how they plan to operate the

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1 plant? I mean, are they going to have all the
2 procedures and so on or is that something that comes
3 with time sometime later?

4 MR. WILSON: Let me give you kind of a
5 generic answer to that question. What we would expect
6 at the combined license application stage is for the
7 applicant to describe their operational programs, tell
8 us how they are going to develop those programs in
9 order to meet the requirements. But we don't expect
10 them to have their detailed procedures written. They
11 won't even have their operational staff hired at that
12 stage.

13 Similar to what was done in the past, we
14 expect that during the course of construction they
15 will hire their operational staff. They will write
16 the detailed procedures, and we will look at those
17 procedures to the extent we feel it is necessary prior
18 to the fuel load authorization during that
19 construction period.

20 MEMBER APOSTOLAKIS: Well, maybe you have
21 answered it already, but when the plant is ready to
22 start producing power, they will have a PRA that will,
23 obviously, include all these procedures and the event
24 trees and what the operators are supposed to do, and
25 that PRA will be part of your review process or it's

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1 not clear?

2 MR. WILSON: I don't know that. What we
3 are requiring to aid us in our review of the combined
4 license application is that design certification PRA
5 plus the increase in scope to deal with site specific
6 design features. Beyond that, is it necessary to
7 update it? That is being considered by the
8 Commission.

9 MEMBER DENNING: Well, let us advise you.
10 I say, well, let us advise you then, since that's what
11 our purpose is, and I think the answer is, yes, you
12 have to revise it. The day they start operating that
13 plant, you have to have revised that PRA so it is
14 applicable to the operational procedures and all that
15 good stuff.

16 MEMBER APOSTOLAKIS: The licensee may say
17 we have done it, but it is none of your business to
18 look at it. Is that something that -- Part 52 is not
19 clear, as far as I remember, what the PRA contains.
20 is that correct?

21 MR. WILSON: Yes. The requirement says
22 you will submit a RPA.

23 MEMBER APOSTOLAKIS: Submit a PRA, which
24 can be, you know, anything.

25 MR. WILSON: And in our --

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1 MEMBER APOSTOLAKIS: Because one event
2 tree and one full tree -- So it's not clear to me, and
3 I understand that you may not have decided on all
4 these things. I'm just asking.

5 MR. WILSON: Well, when we submitted out
6 proposed rule to the Commission, we had more detail in
7 that requirement, and the Commission told us to take
8 it out and put it in review guidance. So we will
9 present that to the Committee with our review
10 guidance, our draft guide, DG-1145.

11 CHAIRMAN WALLIS: Which sounds like a
12 great opportunity to at last require that every new
13 plant has an up-to-date, complete PRA, Level 3, and
14 that's it, no questions asked. Why prevaricate about
15 it? Prevaricate or whatever, you know.

16 MEMBER APOSTOLAKIS: It still will come
17 before us at some point for review?

18 MEMBER SHACK: George, we are scheduled to
19 hear a presentation on DG-1145 in September.

20 MEMBER APOSTOLAKIS: Well, the gentleman
21 here hesitated.

22 MR. WILSON: I didn't know what the
23 schedule was is why I hesitated.

24 MEMBER APOSTOLAKIS: Oh, I didn't ask
25 when.

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1 MR. RAY: You will hear about this more.
2 How's that?

3 MEMBER APOSTOLAKIS: Okay.

4 MR. RAY: All right. The last section in
5 it will have miscellaneous topics in it such as
6 submittal specifications, general and financial
7 information. Generic issues will be in the final
8 section of that guide.

9 Now here is what we have done so far in
10 this guide. We have been having individual sections
11 of this being prepared by the new reactor staff and
12 reviewed by our technical people to make sure that we
13 are putting in what we should be putting in this
14 guide.

15 We have also been having monthly meetings
16 with our stakeholders. The applicants have been
17 coming in. The vendors have been coming in, and we
18 are gaining information from these workshops.

19 Also, as we piece these together, we are
20 putting them on our website so that they are viewable
21 by the public. As we get this all pieced together and
22 get our -- We've got one more workshop in this month,
23 and then we will be piecing together the whole draft
24 guide, and it will be put on our website as well.
25 Then we will be posting it for comment.

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1 After the comment period is over, we will
2 be incorporating them. We won't stop having
3 workshops. We will continue to have workshops to gain
4 further information, and then we will be planning to
5 have our final guide issued at the same time as the
6 rule is done. So any --

7 CHAIRMAN WALLIS: I'm curious about these
8 workshops and public comments. We have commented
9 before that a lot of these public comments seem to be
10 confined to industry and a few interested groups
11 sometimes. But, really, something of this magnitude
12 has a big effect on the real public out there, matter
13 of fact, on the nation, and it would seem important
14 that you make an effort to get input which is not just
15 confined to the regulatory agency and a few special
16 groups and the industry.

17 MR. RAY: You know, we are going all out
18 here, having these multiple workshops. These are --

19 CHAIRMAN WALLIS: But do you get
20 participation from what one might regard as a real
21 cross-section of the public? Probably not.

22 MR. RAY: Not a lot, but it is not by not
23 having the effort of putting it on our website and --

24 CHAIRMAN WALLIS: No, I understand that,
25 but maybe you have to do something more positive to

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1 get another input.

2 MEMBER SIEBER: Well, the true public will
3 show up for the hearings, and that presents another
4 difficulty, because there are things that go on and
5 happen during the hearings that change the nature of
6 the license. So now a plant that follows the one who
7 is currently having a hearing might find some new
8 conditions that are an outcome from some atomic safety
9 and licensing board.

10 MR. BECKNER: Graham, you are right,
11 though. These workshops are pretty lengthy, and I
12 myself have trouble staying awake for the whole thing,
13 and I'm not sure the public would want to show up.

14 In reality, where we seem to be getting
15 the most true public participation is on the
16 environmental side, and that comes about because they
17 have a specific mandate to go to the site, have a
18 number of scoping meetings; and in reality, while it
19 is an environmental meeting, it tends to raise a
20 spectrum of issues, and that's where the true public,
21 the local public and even people with a larger
22 interest in the country will show up.

23 MEMBER APOSTOLAKIS: Well, I guess the
24 present members are not all of one mind. I really
25 don't know what the true public means.

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1 They have their opportunity to come. I
2 don't expect the staff to e-mail DG-1145 to 300
3 million Americans, just to go out of its way to inform
4 them. I mean, they announce it. They have a website.

5 Perhaps an extra thing you can do is go to
6 technical meetings like those of the American Nuclear
7 Society or the other international bodies and present
8 what you are doing without being invited. I mean,
9 just volunteer to go. But I really don't know what it
10 means to --

11 CHAIRMAN WALLIS: Well, we had talked
12 about it as a committee.

13 MEMBER APOSTOLAKIS: True public? What is
14 that?

15 CHAIRMAN WALLIS: We've talked more about
16 the satanically savvy public or the people who might
17 be viewed as -- We've talked about sophomores in
18 university and so on, people who --

19 MEMBER APOSTOLAKIS: Well, they can also
20 accept invitations, sort of volunteer to go to
21 universities to give seminars, but I don't know what
22 else they can do.

23 CHAIRMAN WALLIS: That would be
24 appropriate.

25 MEMBER APOSTOLAKIS: I mean, everything is

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1 public.

2 MR. BECKNER: Our outreach program -- we
3 will go down and show the slide that Rich Tappert
4 started out with, the different opportunities for
5 public comment, not only on the environmental side but
6 also on the safety side.

7 In reality, at these meetings sometimes
8 people will come up and have actually read portions of
9 the big SERs and environmental statements and will be
10 digging in. So typically, we don't get public
11 interaction -- you're right -- on these types of
12 workshops. It's when you get to the sites with the
13 specific application.

14 I call the public as the people who are
15 local.

16 MEMBER APOSTOLAKIS: Actually, I think --
17 coming back to going out and making presentations --
18 a presentation like this would not go over very well
19 at least at MIT, because it is too -- you know, it's
20 important, but the average student really doesn't
21 care. But what will go over very well would be to
22 later on to pick a technical model and show how you
23 come with it, how you reviewed it, what the issues
24 were, how they were resolved. I mean, technical
25 issues, I think --

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1 CHAIRMAN WALLIS: Or explain why it is
2 safe enough. How you are going to explain it is safe
3 enough without a PRA, I have absolutely no idea.

4 MEMBER APOSTOLAKIS: Well, you have some
5 idea.

6 MEMBER SIEBER: We did it for years.

7 MEMBER APOSTOLAKIS: The answer is, if you
8 meet the regulations, you are safe enough. We've been
9 hearing that for 11 years.

10 MEMBER SIEBER: I think the NRC should
11 strive to get public involvement, but I don't think
12 it's worth going overboard. I think look for key
13 things that you can do.

14 A lot of what we've talked about, some of
15 the things are educating the public around here. It
16 really falls on the utilities in that area, I think,
17 have a big responsibilities to take care of a number
18 of those issues, too.

19 CHAIRMAN WALLIS: Well, maybe we've said
20 enough on this subject.

21 MR. RAY: I will quickly say that, through
22 our -- All of these workshops that we have had have
23 been very beneficial. We have been able to engage
24 with the potential applicants and vendors, and we have
25 been able to identify things that we needed to have

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1 dialogue on before we issued this Reg. Guide.

2 Also, we have identified things that we
3 need to have in the standard review plan that needs to
4 be updated, information for the future design
5 certifications, and what we really need to do as a
6 staff to be ready for doing this.

7 Of course, there's going to be standard
8 challenges that you are going to have when you are
9 trying to support this.

10 Now also, we are updating the standard
11 review plan. We have just had an accelerated version
12 of this. By looking at when they are going to submit
13 their applications, we need to have our standard
14 review plan done six months before it.

15 As indicated in 10 CFR 50.34(h), the
16 application should model after the standard review
17 plan that is in effect six months before. So now we
18 are in a rushed process to make sure that we have it
19 completed at that time.

20 Now we need to have one standard review
21 plan at that time and not have updates right
22 afterwards, because if we do that, each of the
23 applicants, as it goes past -- say, they submit two
24 months later. They will be using a different standard
25 review plan, and that would hurt our design centered

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1 approach, and we didn't want to have that.

2 So we are doing everything necessary to
3 make one standard review plan issued at the end of
4 March.

5 Now we have also revised our LIC-200,
6 which is basically the manual for how to do our
7 updates. We are doing a review, a section by section
8 review of the standard review plan. We are going out
9 to our technical staffs. They are reviewing them and
10 updating them.

11 We are also sending those out for review
12 by contractors, and we are going to update some that
13 are just basically combining information we already
14 know.

15 MEMBER APOSTOLAKIS: Are the contractors
16 National Laboratories?

17 MR. RAY: I believe, for the most part,
18 they are the National Laboratories.

19 Now as we update this standard review
20 plan, any of the information that you have seen in the
21 past, we are not going to run back by you. If it is
22 standard information that we use and has been viewed,
23 we are not going to send it by. We are just going to
24 update it. If it just a revision of the format, we
25 will do that.

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1 If we are making new decisions, new
2 positions, we are going to run all of that stuff by
3 you.

4 CHAIRMAN WALLIS: When do you think this
5 might happen? You say opportunities to engage ACRS.
6 When do you think that might start?

7 MR. RAY: I can't give you an exact time
8 of when it will start. As we start identifying things
9 that are --

10 CHAIRMAN WALLIS: Oh, it's not around the
11 corner then?

12 MR. RAY: It's not tomorrow, no.

13 CHAIRMAN WALLIS: But you see May 8, 2006,
14 at the top there.

15 MR. RAY: That was when we updated our --

16 CHAIRMAN WALLIS: Issues, right. But you
17 are not going to make these major changes or anything,
18 if there are any, for sometime?

19 MR. RAY: It will be --

20 CHAIRMAN WALLIS: So it will be next year?

21 MR. RAY: No.

22 CHAIRMAN WALLIS: It will be this year?

23 MR. RAY: This year.

24 CHAIRMAN WALLIS: This year, sometime this
25 year? Okay.

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1 MR. RAY: We plan on having most of this
2 information drafted before the end of the year. When
3 I say drafted, I mean we are going to have it
4 finalized -- our positions finalized to make sure that
5 we are through the process --

6 CHAIRMAN WALLIS: Oh, it's best to engage
7 us, if we are going to have an impact, before you
8 start trying to finalize things, because we don't want
9 to come in at the end and say we don't like something.

10 MR. RAY: Yes. We are going to engage you
11 as early as possible, but it is not going to be
12 tomorrow.

13 CHAIRMAN WALLIS: Fine. Okay, thank you.

14 MEMBER APOSTOLAKIS: The last sub-bullet -
15 - who is doing the evaluating?

16 MR. RAY: Well, that will be with the
17 staff and our managers, our technical staff, and we
18 will be looking at it to see whether we are making any
19 of those different positions. If we make different
20 positions, that's the sections that we want to get to.

21 MEMBER APOSTOLAKIS; So you are
22 evaluating?

23 MR. RAY: Yes. And if we make different
24 positions, that's when we want to get to you, but we
25 don't want to waste your time on stuff you've already

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1 seen.

2 CHAIRMAN WALLIS: That's right, and then
3 we will work together to decide, once there are things
4 that we might potentially consider, whether or not we
5 should consider them.

6 MR. RAY: Go to the next one. Okay, now
7 as we are updating the standard review plan, we are
8 also looking at the Reg. Guides that are referenced
9 and that are currently in use. Research is helping us
10 out with this by doing these reviews.

11 Also, with our development of the Reg.
12 Guide for the standard content and format for
13 application, we are also identifying things that need
14 to be reviewed, and we are basically making sure that
15 all of the Reg. Guides are suitable to be used as of
16 March '07.

17 If there are Reg. Guides that are not
18 suitable to be used, they will be referenced in the
19 standard review plan. If they are in process and can
20 be finalized by the March date, we will finalize them.
21 If they need to be caveated to say only use particular
22 sections, we will do that.

23 We are using a process of saying the final
24 will be coming out instead of lots of drafts. We are
25 going to get things so that they are usable by that

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1 March date.

2 Now at times there are going to be Reg.
3 Guides that have technical bases that are basically
4 research projects. We think something needs to be
5 changed. They will be ongoing. If they are ongoing
6 now and can't be finalized, we are not going to wait
7 on those. Those will always be taking place. So that
8 we will use whatever the current position is right
9 now.

10 That's the end of my talk. Any other
11 questions before we turn over to the construction
12 inspection program?

13 MEMBER MAYNARD: Let me -- The applicant's
14 submittal, where you've got multiple. Have there been
15 any discussion about their maybe combining and just
16 make one submittal in an area that they all agree to
17 or would it be like five separate submittals saying
18 the same thing?

19 MR. RAY: I don't think that we have had
20 an exact discussion to say can you reference somebody
21 else's specifically or whether you have to actually
22 have the separate words in there or not.

23 MEMBER MAYNARD: Might consider some of
24 those things. There is some experience in this back
25 in the Eighties, the SNUPS plants. There was a common

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1 design, started with five, got down to two plants
2 there. But there was a single submittal that applied
3 to both plants. They basically just said, hey, yes,
4 that's for us, too. Then there was a site specific
5 section later for things that were just truly site
6 specific. So basically ended up with a combined joint
7 FSAR, and each one had an addendum for the site
8 specific aspects.

9 MR. RAY: Well, lots of these that you saw
10 up on the big schedule have two plants with them. So
11 they are doing that already within locations, but as
12 far as spreading out, they haven't done that as yet.

13 MEMBER MAYNARD: I think it's going to be
14 difficult to keep five plants agreeing to some of the
15 common things. It's a real challenge there.

16 MEMBER SIEBER: On the other hand, there's
17 practical things associated with having one submittal
18 covering a multitude of plants at different sites, for
19 example, public documents. You have to have a public
20 document room close to the site, and that has to
21 contain sufficient information to describe the
22 facility. But maybe it's just additional copies that
23 you put there, but it's got to be that way.

24 MR. TAPPERT: There's probably more than
25 one way to skin a cat. My thinking was you would just

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1 have individual submittals, but if it could be word
2 for word the same, then that would be the way to do
3 it. But I think Bill had something he wanted to add.

4 MR. BECKNER: You skipped a slide, John.
5 What do you want to do? You skipped a slide, I
6 thought.

7 MR. TAPPERT: Oh, going back?

8 MR. BECKNER: I don't know if you want to
9 say any of that or not.

10 MR. TAPPERT: I just had a couple of
11 comments I can make about what we are doing in our
12 human capital area.

13 Like we indicated, NRR is going to be the
14 primary growth area for this review activity, and we
15 are going to need to hire over 300 new employees over
16 the next couple of years. That's above our attrition
17 level.

18 So we are doing a lot of things to make
19 sure that is happening. We have been working to
20 streamline our recruiting process. We have some
21 dedicated people on our staff just pushing
22 applications through. We have actually achieved
23 remarkable success to date. We have actually hired
24 over 170 people this year, which is quite surprising
25 to me and really has us on track to be where we need

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1 to go.

2 MEMBER APOSTOLAKIS: Are these mostly new
3 graduates or a mix?

4 MR. TAPPERT: It's a mix. We've doubled
5 the size of what we call our nuclear safety
6 professional development program, which are our
7 college graduates. We have gone from 14 to 28 on
8 that. But the majority of the hiring is at the GS-13
9 level, at which we are getting people with five, 10,
10 15 years experience. You know, we are getting them
11 from utilities. We are getting them from architect-
12 engineers, and we are actually going outside the
13 nuclear industry.

14 We are doing everything. We are
15 advertising in all the trade journals. Whenever we
16 find out that somebody is downsizing or right-sizing,
17 we try to go to those markets -- you know, Savannah
18 River, and even when we found that Ford and General
19 Motors were laying off a lot of their white collar
20 workers, we went out to Detroit to see if we could
21 pick up some mechanical or electrical engineers out
22 there.

23 So it's kind of an offensive on all fronts
24 there.

25 CHAIRMAN WALLIS: There is another tsunami

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1 which is going on, which is the retirement of all
2 those folks who were in on the licensing of the
3 existing plants and knew what was going on then. All
4 that knowledge is going to disappear unless you do
5 something about it.

6 MR. TAPPERT: We -- and we are also
7 augmenting the staff with what we call redeployed
8 annuitants. So we have some of our experienced
9 employees who are retiring, and then we just bring
10 them back the next -- you know, and we will hold onto
11 them for a couple of years, and their principle role
12 is knowledge transfer to work with the younger staff
13 to transfer their knowledge.

14 MEMBER APOSTOLAKIS: Your third bullet
15 there probably addresses some of that.

16 MR. TAPPERT: Right, the knowledge
17 management. The next one is training. After we bring
18 them in the door, we want to train them and get them
19 up to speed. We are augmenting our existing programs
20 and developing some new ones.

21 We are having some seminars with the new
22 employees. We've had our Deputy Office Director give
23 a couple of these, talking about regulatory decision
24 making. One of the big changes coming to the Nuclear
25 Regulatory Commission, even if you worked for a

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1 nuclear utility, is that now you are a regulator, and
2 you need to understand what that means. So we get
3 them up to speed on that.

4 We've developed some new employee
5 orientation and training guides. We are also
6 developing qualification plans for the first time.
7 The regions have been using this for decades where
8 they qualify their inspectors with a very rigorous
9 inspection training program.

10 NRR has traditionally not done that, but
11 we are rolling those out now. We have them project
12 managers, and we are currently developing them for the
13 technical staff.

14 In knowledge management, we are using the
15 reemployed annuitants to kind of transfer knowledge.
16 We also have a tool that's called the Strategic
17 Workforce Planning, which is a big database, and for
18 every employee in the agency it has all their skills
19 that they have and their expertise levels, and first
20 line managers can look at their staffs, and they can
21 find out, well, who has what expertise and how close
22 are they to retirement, and based on that, they can
23 develop strategies for what kind of people they need
24 to recruit and what kind of training programs they
25 need to close those gaps.

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1 We are also using the standard review plan
2 update that Phil is working on as another knowledge
3 management tool.

4 Then finally, we want to leverage
5 contractor resources as part of this review process.
6 We have just recently put out a solicitation asking
7 for companies to indicate whether they want to
8 participate in these reviews, and we got input from
9 over 45 companies that want to be part of this new
10 reactor licensing program, and we are currently
11 evaluating those for technical expertise and conflict
12 of interest type issues.

13 That's basically what I wanted to say
14 about that. So I think that's what me and Phil had to
15 say. If there's any questions on that? Okay. Now
16 we have Stu, who doesn't look like Mary Ann Ashley,
17 who is going to talk about the construction inspection
18 programs for a couple of minutes.

19 MR. RICHARDS: Good morning. My name is
20 Stu Richards. I am the Deputy Director for the
21 Division of Inspection and Regional Support in NRR.

22 The presentation today was scheduled to be
23 given by Mary Ann Ashley, who is the team leader for
24 the construction inspection program development.
25 Unfortunately, Mary Ann is out sick today. So I'm

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1 filling in for her, and I have worked quite a bit with
2 Mary Ann. So I don't have her level of knowledge, but
3 I have some level of knowledge on this.

4 It's a short presentation. There's only
5 three slides, and I think it's to give you an update
6 on activities that we have been before this committee
7 before to talk about what we were doing.

8 To summarize, there are some unique
9 challenges in developing the construction inspection
10 program for the new reactors coming up. One issue is
11 that there is a potential that the construction will
12 take place, a lot of it, off-site.

13 You know, there is a discussion of modular
14 construction in shipyards, perhaps offshore, foreign
15 countries. It's likely that a lot of the large
16 components will be fabricated in foreign countries
17 also. So that's a challenge.

18 The utilities have advertised that the
19 construction schedule is going to be fairly
20 aggressive. So it is important that we be prepared to
21 gear our inspections to stay up with that schedule
22 and, more importantly, I think, is for us to be very
23 aware of what the licensee is doing as far as their
24 schedule is concerned, so we can make sure our
25 inspectors are there at the right time to do the right

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1 inspections.

2 We are challenged to make sure that our
3 inspection process is geared to the ITAAC. The
4 Commission is specifically required to make a finding
5 that the ITAAC have been completed. In order for the
6 Commission to do that, the staff intends to perform
7 specific inspections in the ITAAC area to support that
8 finding.

9 So we specifically are targeting
10 inspections at ITAAC.

11 MEMBER SIEBER: Is that going to be 100
12 percent inspections of ITAAC issues?

13 MR. RICHARDS: Every ITAAC will receive
14 some kind of review or inspection, but it certainly
15 won't be 100 percent of -- You have to define what
16 that population is. So for every line item ITAAC,
17 there will be something that will say, yeah, that's
18 been completed.

19 The depth of that review or inspection
20 varies quite a bit.

21 MEMBER SIEBER: And who decides that, and
22 what's the basis?

23 MR. RICHARDS: It's kind of addressed at
24 a couple of slides down the road, but I can talk to it
25 a little bit now.

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1 As part of the development, we are putting
2 together a sampling plan. I believe the contractor
3 report for that was forwarded to the Committee, but
4 that was just a recent thing. So you may not have had
5 a chance to look at it.

6 The plan for ITAAC is to go through the
7 certified design and group the ITAAC into various
8 bins, if you will. There's a matrix contained in one
9 of the inspection manual chapters that lays out that
10 process.

11 Then once all the ITAAC are binned into
12 various categories, then they will be prioritized
13 according to another process that looks at things like
14 the safety significance, the complexity. If you only
15 have one shot at looking at it, for instance, if it's
16 rebar and the containment base mat, you got one
17 chance. Right? But for other components, you know,
18 it might be easier to just wait for the pre-op and
19 start-up testing and take care of it that way.

20 So there's four or five considerations
21 that go into prioritizing the various ITAAC. You
22 basically come up with a number, and then you can make
23 your decisions based on how those things rank out, how
24 much effort you are going to put into any given
25 individual ITAAC.

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1 MEMBER SIEBER: How much are the old
2 instruction/inspection manual is still usable?

3 MR. RICHARDS: Well, quite a bit,
4 actually, because one aspect is that we are still
5 doing the same basic inspections. We are still
6 inspecting concrete. We are still inspecting welding.
7 We are still inspecting cable pulling and what have
8 you. So those aspects haven't changed, and a lot of
9 that where we are bringing in those procedures --

10 MEMBER SIEBER: The bulk of the work,
11 actually.

12 MR. RICHARDS: I'm sorry?

13 MEMBER SIEBER: That's the bulk of the
14 inspection work, isn't it?

15 MR. RICHARDS: Yes. Right.

16 MEMBER SIEBER: The commodity handling.

17 MR. RICHARDS: The challenge this time is
18 really more administrative than it is technical. We
19 are updating those procedures and working with the
20 various tech branches to make sure that those are all
21 appropriate, but a lot of the common construction
22 techniques and work activities are the same from what
23 they were before to what they are going to be in the
24 future.

25 The difference is the schedule is probably

1 going to be more aggressive. The location of the
2 activities may be a lot more diverse, and then we have
3 the wrinkle of the ITAAC. The basic regulatory
4 framework is quite a bit different from what we had
5 before.

6 Before, somebody got a construction
7 permit. You went out and did all these inspections,
8 and then they came into the Commission seeking to
9 demonstrate that they've built the plant okay, and
10 seeking a license.

11 Now they are going to have a license, and
12 it's up to the staff to go out and inspect -- Well,
13 let me back up. The licensee will send a
14 certification saying that each of these ITAAC have
15 been completed, and then it's up to the staff to say,
16 yeah, we agree based on our inspection and review of
17 the paperwork, or to take exceptions. So the
18 dynamics are changed.

19 MEMBER SIEBER: Could you give me an idea
20 of how much of the inspection manual already exists
21 and how much new things you need to create?

22 MR. RICHARDS: Well, we have -- There's
23 four inspection manual chapters which are the
24 overriding guidance. All four of those have been
25 completed, and maybe I ought to just flip to the next

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1 slide here.

2 That list of four manual chapters: There
3 is one for early site permits that's issued, and the
4 associated inspection procedures have been in place
5 and have been used.

6 MEMBER BONACA: At some point I would like
7 to go back to the previous slide.

8 MR. RICHARDS: Okay. The 2502 is the
9 inspector's support issuing the COL. So that is pre-
10 COL activities. That particular man. chapter is
11 issued, and the inspection procedures have been
12 issued.

13 Manual Chapter 2503 is specific for ITAAC
14 work, and 2504 is everything that is not ITAAC. Those
15 manual chapters have been issued. The associated
16 inspection procedures have not been issued, but they
17 are being worked out now. Somewhere here I've got the
18 data on when they are all going to be done, but it's
19 roughly over the next 18 months or so.

20 MEMBER SIEBER: You've done a lot of the
21 work.

22 MR. RICHARDS: Yes, a lot of the work is
23 done. The framework is pretty much done, and we are
24 kind of fleshing that out right now.

25 MEMBER SIEBER: That's good.

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1 MR. RICHARDS: Well, and the other thing,
2 you know, it's unfortunate Mary Ann is not here. I
3 think she's done a very good job, but she's had the
4 assistance of a number of employees who had prior
5 construction inspection experience for the NRC.

6 So when it came time to do this, we wanted
7 to go back to people who had been there before. There
8 was an effort before to capture the lessons learned,
9 and we were fortunate enough to get a couple or three
10 inspectors, construction inspectors, from the previous
11 group who had retired and now are rehired annuitants,
12 specifically to work on this task.

13 So we've got a very good group of people
14 working on it.

15 MEMBER SIEBER: Well, that's great.

16 MEMBER BONACA: I had a question on the --

17 MR. RICHARDS: How do you make the slide
18 go backwards? You taught me how to make it go
19 forward.

20 MEMBER BONACA: I guess you don't have to.
21 My question was on the first bullet that you had,
22 actually.

23 These inspection construction activities -
24 - How do you plan to -- I mean, not everybody is
25 building to U.S. codes and standards, and that is

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1 quite a challenge at times to qualify a component that
2 is built to, say, German standards to look for -- to
3 demonstrate that it meets U.S. standards? How do you
4 deal with that, with all these components coming from
5 different countries?

6 MR. RICHARDS: I might have to turn to the
7 New Reactors folks, but you know, the licensee has to
8 come in with their application, and it is going to
9 list the codes and standards it is going to be
10 constructed to. They are going to review that, and
11 either approve it or not.

12 Whatever they approve, that's what we are
13 going to inspect to.

14 MEMBER BONACA: Yes. It's not on the
15 vendor.

16 MR. WILSON: I will add on, though, that
17 certain codes and standards are part of our
18 regulations that are going to have to be met. So
19 let's take an example of an operating plant that has
20 purchased a new reactor vessel head made in a foreign
21 country.

22 The producer had to demonstrate that that
23 head met ASME requirements. So we would envision
24 similar activities in these future plants.

25 MEMBER SIEBER: But that head was built

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1 to a foreign standard, and what they end up doing is
2 trying to establish an equivalence.

3 MEMBER BONACA: Yes.

4 MR. BECKNER: At the risk of getting into
5 an area where I'm definitely not an expert --

6 MEMBER BONACA: I'm sorry, I can't hear.

7 MR. BECKNER: I'm Bill Beckner. I'm
8 sorry. It is my understanding that we are not trying
9 to show the applicability of foreign standards. We
10 are basically looking to our standards. We are
11 basically looking at the component meeting our
12 standards.

13 The example I give is that the EPR, of
14 course, is being built, and there will be probably at
15 least two of them built outside the U.S. before one
16 might be built in this country. But they are in the
17 process now of converting the design to not only --
18 the electrical to U.S. electrical, but also converting
19 the design to U.S. codes and standards, for that very
20 reason.

21 MEMBER BONACA: I was certain that you
22 would expect that. All I'm trying to say is that the
23 vendors are going to have to develop equivalencies and
24 consideration of that type, and it may be challenging
25 to review those.

1 MR. BECKNER: Well, again, as I
2 understand, they are going to submit U.S. -- under
3 U.S. standards. At least, the EPR is.

4 MR. RICHARDS: I think that's the case.
5 You know, we have steam generators and heads being
6 fabricated overseas now, and I think they are being
7 built to ASME code standards. They are being audited
8 by the utilities.

9 Just in the last couple of weeks, we had
10 our vendor inspection people accompany the NUPIC
11 people doing an audit in France of some of those
12 facilities.

13 MEMBER SHACK: I'll do the Spanish
14 inspection of the steam generator.

15 MEMBER SIEBER: Well, you always had that
16 situation with the reactor vessel. I mean, this is
17 nothing new.

18 MR. RICHARDS: Other questions? I'm back
19 on slide 1.

20 MEMBER APOSTOLAKIS: I thought there was
21 an effort to -- Didn't Chairman Diaz start an effort
22 to try to see whether we can take advantage of the
23 experience of other countries? For example, the
24 Finnish reactor has been licensed by them.

25 MR. RICHARDS: Yes. There is an acronym

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1 that goes -- Bill, can you help me with that?

2 MR. BECKNER: Multi-National Design
3 Approval and -- it's either Project or Program, and
4 it's very sensitive to the Chairman. So I don't know
5 which it is. It's program? Okay.

6 There's three phases to that. The first
7 phase, which is well underway with EPR, is basically
8 to inform each other of the review. That's going on.
9 There have been several trips already overseas, and
10 meetings.

11 The later phases would be to try to
12 converge or coordinate the various standards and
13 requirements, but primarily right now it's the Phase
14 1, looking and trying to inform.

15 It would still be approved under U.S.
16 requirements, U.S. standards and so forth, but we
17 would inform the review.

18 MR. RICHARDS: Okay. Just again briefly
19 to talk about some of the challenges and some of the
20 open issues. You know, we anticipate things moving
21 along fairly quickly in construction. So we need to
22 be able to, for instance, issue inspection reports to
23 keep up with that.

24 We are still working through the
25 enforcement aspect. It's important to recognize that

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1 this is not the ROP. What we are going to be doing in
2 construction isn't going to look like the ROP. We are
3 not going to have an action matrix. We are not going
4 to have green, yellow, white, red findings. It's a
5 different set of needs.

6 MEMBER APOSTOLAKIS: And it's not going to
7 be this conformed.

8 MR. RICHARDS: Well, it is to the degree
9 that we can include that into the sampling process
10 that we've discussed already. So there is an aspect
11 of that, but --

12 MEMBER APOSTOLAKIS: Primarily --

13 MR. RICHARDS: Well, I don't know yet. We
14 still haven't worked out the enforcement aspects yet.
15 I think there is potential that risk elements would
16 factor into the enforcement aspect, but I don't know.
17 So that's something we still have to work out.

18 The second slide talks about the
19 organization of the construction inspection program.
20 I touched on this already. It is broken up into four
21 pieces. We've got the manual chapters for all four in
22 place. The procedures for the first two manual
23 chapters are already issued, and we are working on the
24 other two, 2503 and 2504.

25 Talked a little bit already about 2503.

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1 Manual chapter 2504 addresses all of those issues that
2 are non-ITAAC. So it's the construction programs such
3 as the quality assurance program. It addresses all
4 those operational programs that need to be looked at
5 prior to the plant going on line.

6 So when you start talking about security,
7 EP, environmental qualification, in-service
8 inspection, the maintenance rule -- you know, all
9 those things that an operating power plant has will be
10 looked at under 2504 before that plant goes on line.

11 Of course, as the plant nears the end of
12 construction, you will start seeing more and more
13 operational type inspections occurring. The
14 inspection staff will start shifting from being
15 construction oriented to being operations oriented.

16 The last slide, I'll talk briefly about
17 the inspection resources. You know, we do have three
18 types of inspections we are going to need: The on-
19 site inspection staff. We are envisioning likely to
20 have four staff on site, and then some administrative
21 support.

22 One of those four staff will be a
23 scheduler type person. One of the keys to the program
24 is this thing called CIPMS, Construction Inspection
25 Program Information Management System.

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1 The difficulty here is you are going to do
2 all these inspections. You got all these things to
3 keep track of. So we came up with this computer
4 system that is going to take all the inspection data,
5 load it in, and hopefully, help us keep track of what
6 we've looked at over the course of the construction
7 period, so that when it comes time to decide whether
8 we agree with the completion of ITAAC, we can go into
9 CIPMS. It will help us draw down all those inspection
10 activities and reach that conclusion, hopefully.

11 We also have to keep up with the
12 inspection schedule, and we are working with the
13 industry so that we will have access to their real
14 time construction schedule, and that scheduler will be
15 pretty much a full time individual to make sure we are
16 doing the right inspections to keep up with the
17 licensee.

18 We will have specialty inspectors that are
19 based out of the regions, just like we have for
20 operational plants; and depending upon the degree to
21 which fabrication occurs, particularly modular
22 construction occurs, elsewhere, we may end up having
23 inspectors at those locations also.

24 MEMBER MAYNARD: You say four resident
25 inspectors, just for construction? That seems high

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1 compared to what it used to be. Now if they are doing
2 more of the inspections versus what is coming out of
3 the region, that might be -- Four resident inspectors.
4 Both units being constructed at the same time, it
5 might be different.

6 MR. RICHARDS: Well, you know, we did a
7 lessons learned review from the past construction
8 experience, and one of the issues that came out of
9 that was, if you are going to stay up, you've got to
10 have the people there.

11 Quite frankly, the licensee keeps
12 building, whether you have the inspectors there to do
13 the inspections or not. So it's better to have them
14 on site and available than to get behind the curve.

15 MEMBER MAYNARD: I think it's a division
16 of how much you have at each site versus how much you
17 handle either out of headquarters or out of the
18 region. I'm not saying it's too much inspection. I'm
19 just wondering if the resources are in the right area
20 for what is going on at the time. That's all I'm
21 saying.

22 MR. RICHARDS: All right.

23 MEMBER SIEBER: Well, I think we've
24 learned from the last big construction era that the
25 speed at which the plant is being built determines how

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1 many inspectors you need.

2 MR. RICHARDS: Right.

3 MEMBER SIEBER: Now if you had a plant
4 that was -- the construction was dragging out over 10
5 years, the inspection effort was delayed and the
6 manpower level was lower by an inspector or two. But
7 it would appear that, if everybody sticks to the
8 schedule, these construction programs are going to go
9 pretty fast, which would require a higher level of
10 effort from the inspection staff.

11 MEMBER MAYNARD: Yes. What I'm used to
12 seeing more so is a number of things that need to be
13 inspected, and the on site individuals keep track of
14 the schedule, doing some inspection but pretty much
15 coordinating when somebody needs to come in to take a
16 look at an activity.

17 If the on-site inspectors don't be the
18 ones doing most of the inspection, that may work, too.

19 MR. RICHARDS: The other aspect that I
20 think is important is that, if we think there is a
21 problem at the site, I think it is a lot better to
22 tell the utility early on in construction. You know,
23 one of the bad things, for instance, like we had in a
24 couple of plants was deciding that they had problems
25 pretty late in the program.

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1 So a plant is 80-90 percent built, and
2 then all of a sudden you're saying, hey, you got some
3 major construction problems here. That's a real hard
4 place to be, to address. If there is something going
5 on that's not being done well, we want to be telling
6 people early on, and I think we want to have the
7 inspectors out there to make that possible.

8 MEMBER SIEBER: If you allow it to go on
9 until the plant is nearly done, often you are in an
10 unrecoverable situation. If they are doing more of
11 the inspections versus what is coming out of the
12 region, that might be --

13 MEMBER MAYNARD: Financial standpoint.

14 MR. RICHARDS: Your point is well taken.
15 You know, the pace that they are advertising building
16 these plants could be quite a bit quicker than before.

17 This is my last slide. So I'm open to any
18 questions. I'm sure we will be back to talk to you in
19 more detail in the future.

20 MEMBER APOSTOLAKIS: When did you start
21 having the inspectors on site during construction?

22 MR. RICHARDS: Previously?

23 MEMBER APOSTOLAKIS: Yes. When did the
24 agency start doing that?

25 MR. RICHARDS: You mean for the

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1 construction of the plants that are in service now?

2 MEMBER APOSTOLAKIS; Yes.

3 MR. RICHARDS: I hate to say it, but you
4 know, that was before my time, at least for the very
5 earliest generation of plants. I did perform
6 construction inspections of some of the plants, but
7 that was late. The later plants, we had more
8 construction inspectors on site. We were better at
9 getting operational inspectors there than I think we
10 were for the early sites.

11 For instance, we didn't have construction
12 inspectors until roughly right before TMI, '78, '77.
13 So for those plants that were built in the late
14 Sixties and early Seventies, I think all those
15 activities were conducted out of the regional offices.

16 MEMBER APOSTOLAKIS: Did you have resident
17 inspectors when Diablo Canyon was being constructed?

18 MR. RICHARDS: Well, Diablo, I think, took
19 about -- what? -- 20 years, 15 years.

20 MEMBER APOSTOLAKIS: I don't know.

21 MR. RICHARDS: I think they started Diablo
22 Canyon in '68.

23 MEMBER APOSTOLAKIS: Were inspectors
24 there?

25 MR. RICHARDS: At the end, there was a lot

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1 of inspectors. In the beginning --

2 MEMBER APOSTOLAKIS: At the end, I know.

3 MEMBER MAYNARD: I think, for the plants
4 constructed in the Eighties, the very late Seventies
5 or Eighties, a resident construction inspector was
6 there essentially from the time they got the
7 construction permit, after TMI.

8 MR. RICHARDS: Yes, after TMI.

9 MEMBER APOSTOLAKIS: So was Diablo one of
10 them or not?

11 MR. RICHARDS: Diablo started, I believe,
12 before.

13 MEMBER APOSTOLAKIS: Before?

14 MR. RICHARDS; Yes.

15 MEMBER APOSTOLAKIS: Well, that's a good
16 answer.

17 MR. RICHARDS: Of course, Diablo -- you
18 know, I went on line about '83.

19 MEMBER MAYNARD: I know Diablo
20 construction started well before TMI.

21 MR. RICHARDS: Diablo started about the
22 same time as Trojan. That was '68.

23 MEMBER BONACA: Sixty-eight?

24 MR. RICHARDS: Well, you know, Trojan was
25 built in roughly 48 months, and Diablo was more or

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1 less the same plant, and it was '68 to '83 or '82 or
2 something.

3 MEMBER BONACA: Some adventures in
4 between.

5 MEMBER SHACK: Have you made any attempt
6 to look at, say, Japanese experience where, in fact,
7 they do have construction on roughly the kind of
8 schedules you are talking about here?

9 MR. RICHARDS: Yes, we have. We've had
10 some interactions with the Japanese, the Koreans.
11 Mary Ann went to Finland and visited with the Swedish
12 regulator at the EPR site that they are building. She
13 also went to some of the fabrication facilities in
14 France.

15 We have had some interactions with some
16 foreign countries here that have come to visit with
17 us. So we recognize the value of trying to build on
18 what they have already done. They've got the present
19 day experience that we don't.

20 MEMBER SIEBER: Good luck.

21 MR. RICHARDS: Thank you. We are looking
22 forward to it.

23 MR. BECKNER: I think, as John showed you,
24 we got some drama in. I think it was a little bit
25 impressive as far as what is coming in, at least what

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1 we expect is coming in.

2 Let me say, there's a lot of assumptions
3 in there, and really lack of knowledge. They are all
4 coming in at the same time, largely driven by the
5 Energy Policy Act. It remains to be seen just exactly
6 how they come in, but as we have indicated, we feel
7 the only way we can deal with this is to make use of
8 a high level of standardization in the review.

9 I think, as the Committee has pointed out
10 here, our success will be just driven by how well the
11 applicants play the game and how serious they are
12 about standardization, too. We'll see. It is to
13 their advantage, obviously, to be standardized, but
14 that's really the only way that the NRC is going to
15 make use or get through this expected submittals.

16 So we are pursuing it very strongly, the
17 designed centered approach. Again, I think that with
18 the ACRS and a lot of other parts of the agency, the
19 Board and so forth, you are going to have to pursue
20 the same approach.

21 So this idea was to get you thinking, and
22 we will, obviously, work with your staff in the future
23 to try to make it work.

24 That's really all the prepared remarks.
25 Do we have questions or anything else?

1 MEMBER KRESS: Let's talk about the design
2 centered approach for the ACRS.

3 MR. BECKNER: Okay.

4 MEMBER KRESS: What I envision is each of
5 the design groups you had would have its own
6 subcommittee, its own subcommittee chairman, and they
7 would specialize in that particular certified design.

8 MR. BECKNER: That seems reasonable. Yes.
9 And recognize that we will probably be organized that
10 way in NRR. Already, we have two projects branches
11 which are sort of a PWR and a BWR branch. Eventually,
12 we will probably be going with an EPR branch and
13 AP1000 branch and so forth. So we would be organized
14 that way, too.

15 MEMBER KRESS: Thank you. Mr. Chairman,
16 I think we've basically come to the end of this
17 session.

18 CHAIRMAN WALLIS: We've ended at the
19 break. So we'll take a break, unless there is
20 anything more we need to do.

21 MEMBER DENNING: Well, let me ask a
22 question. After the break, are we allowed to work on
23 letters?

24 CHAIRMAN WALLIS: Yes. After the break,
25 we have no more formal presentations. We will go back

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1 to working on the things that we do as a committee,
2 and we should be ahead of the game. We can get some
3 things out of the way, and we will get to your letter
4 as soon as we can.

5 MEMBER DENNING: I wasn't thinking about
6 my letter.

7 CHAIRMAN WALLIS: Are the states going to
8 be involved in some way with these things? And I know
9 that Vermont is trying to inject itself into the
10 Vermont Yankee licensing process.

11 MR. BECKNER: The states are very much
12 involved with what our environmental people do, and
13 I'm not much of an expert in that area, but -- and
14 part of the outreach -- I talked about some of the
15 local outreach.

16 When we do the local outreach, we also go
17 to the local governments to get try to get them
18 involved early.

19 MEMBER SIEBER: Well, the state actually
20 issue some of the permits and licenses.

21 MR. BECKNER: That's correct. They play
22 a major role. We defer to them specifically on a
23 number of areas.

24 MEMBER SIEBER: Actually, you have to get
25 an occupancy permit from the state. There's a bunch

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1 of hoops you got to go through.

2 CHAIRMAN WALLIS: That's probably less of
3 the ACRS concern than it's your concern.

4 MR. WILSON: It's been a major concern and
5 issue so far with the early site permits. A lessons
6 learned has been to get the states and local
7 governments involved earlier.

8 CHAIRMAN WALLIS: Anything else? Well,
9 thank you very much for getting us started. I'm
10 looking forward to the time when you come to us with
11 something substantial where we can make a
12 contribution. It's a very good start. Thank you.

13 (Whereupon, the foregoing matter went off
14 the record at 10:07 p.m.)

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CERTIFICATE

This is to certify that the attached proceedings
before the United States Nuclear Regulatory Commission
in the matter of:

Name of Proceeding: Advisory Committee on


Reactor Safeguards

533rd Meeting

Docket Number: n/a

Location: Rockville, MD

were held as herein appears, and that this is the
original transcript thereof for the file of the United
States Nuclear Regulatory Commission taken by me and,
thereafter reduced to typewriting by me or under the
direction of the court reporting company, and that the
transcript is a true and accurate record of the
foregoing proceedings.



ERIC HENDRIXSON

Official Reporter

Neal R. Gross & Co., Inc.

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Challenges and Strategies for Licensing New Reactors

Phillip M. Ray

John R. Tappert

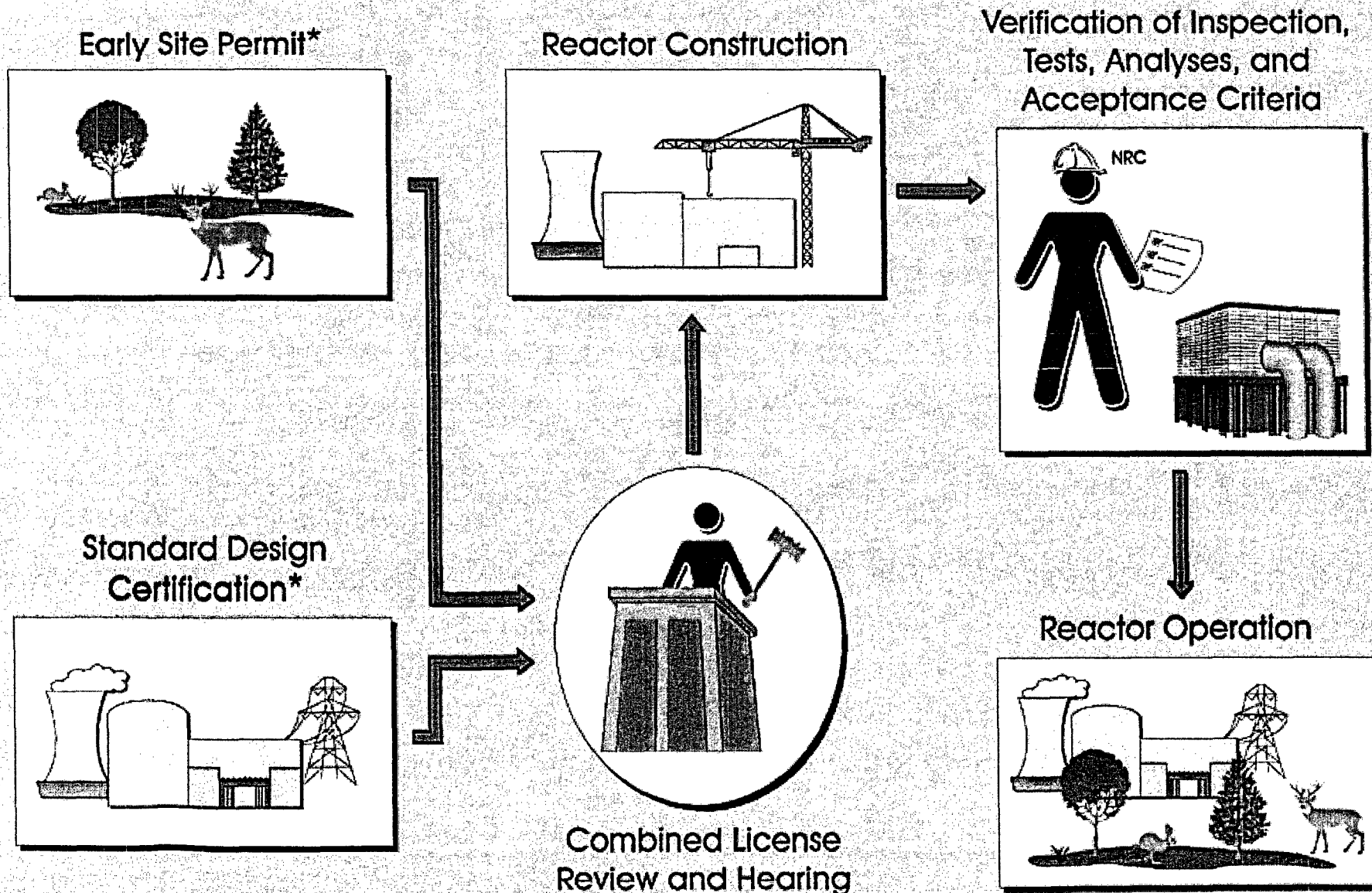
**Division of New Reactor Licensing
Office of Nuclear Reactor Regulation**

June 1, 2006

Topics for Discussion

- **Challenges**
 - **Level of expected licensing activities**
 - **Schedules and expectations**
 - **Resources**
- **Strategies for new reactor licensing activities**
- **Key infrastructure development activities**

Combined Licenses, Early Site Permits, and Standard Design Certifications



* or equivalent process

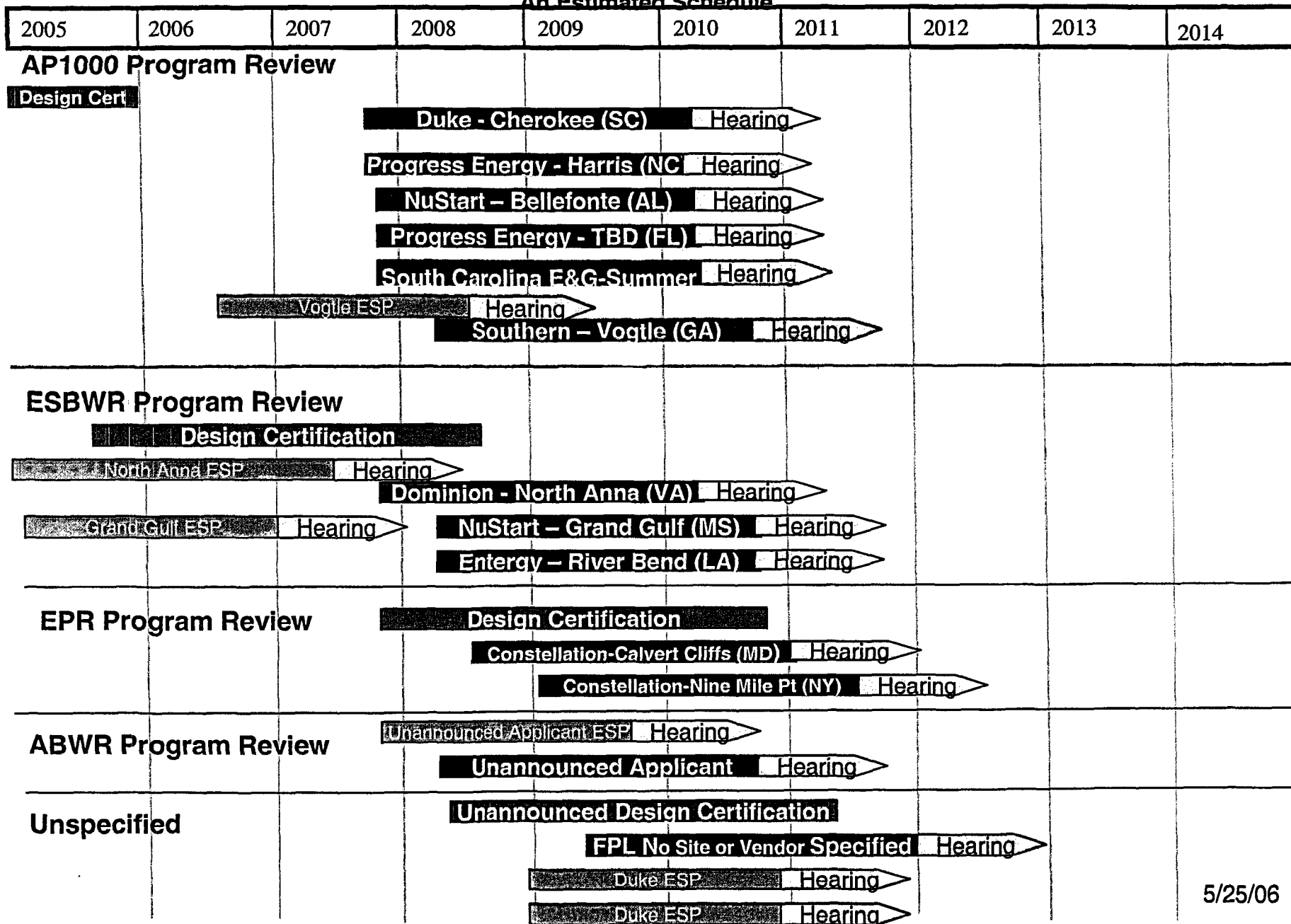
New Reactor Licensing Activities Forecasted

(As of May 19, 2006)

Organization/Docket Number or Project Number	Sites Under Consideration (Units)	Applications Planned or Submitted
AP 1000 Certified Design		
Duke (742)	Cherokee (2)	COL: Late 2007 or Early 2008
NuStart (740)	Bellefonte (2)	COL: 4 th Qtr 2007
Progress Energy (738)	Shearon Harris (2)	COL: Sept or Oct 2007
	Florida (2)	COL: Late 2007 or 1 st Qtr 2008
South Carolina Electric and Gas (743)	Summer(2)	COL: 3 rd Qtr 2007
Southern Nuclear Operating Company (737)	Vogtle	ESP: 8/2006 COL: 3/2008
ESBWR Design		
Dominion (741)	North Anna	ESP: submitted in 2003 COL: 2007
Entergy (745)	River Bend	COL: Early 2008
NuStart (744)	Grand Gulf	ESP: submitted in 2003 COL: early 2008
EPR Design		
Constellation (746)	Calvert Cliffs Nine Mile Point	COL: 6/2008 and 6/2009
ABWR Certified Design		
Unannounced	TBD (2)	ESP: 3 rd Qtr 2007 COL: TBD
Unannounced Design		
Florida Power and Light	TBD	COL: 2009
Duke	Davie County, NC Oconee County, SC	ESP (TBD) ESP (TBD)
Advanced Technology		
Unannounced Applicant	N/A	Design Certification: 1 st Qtr 2008

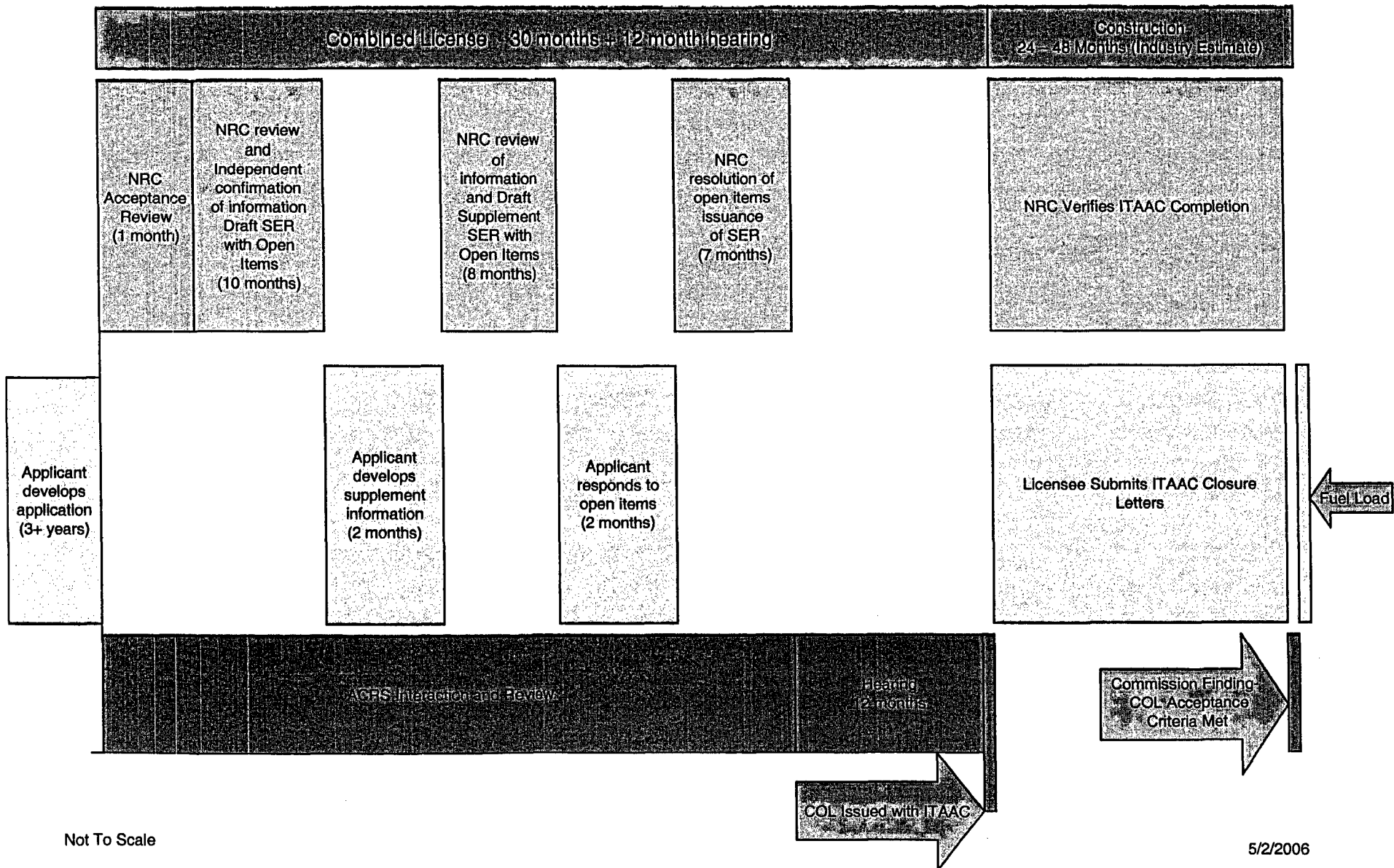
New Plant Licensing Applications

An Estimated Schedule



5/25/06

Combined License Safety Review Process



NRC Human Capital

- **Recruiting**
- **Training**
- **Knowledge Management**

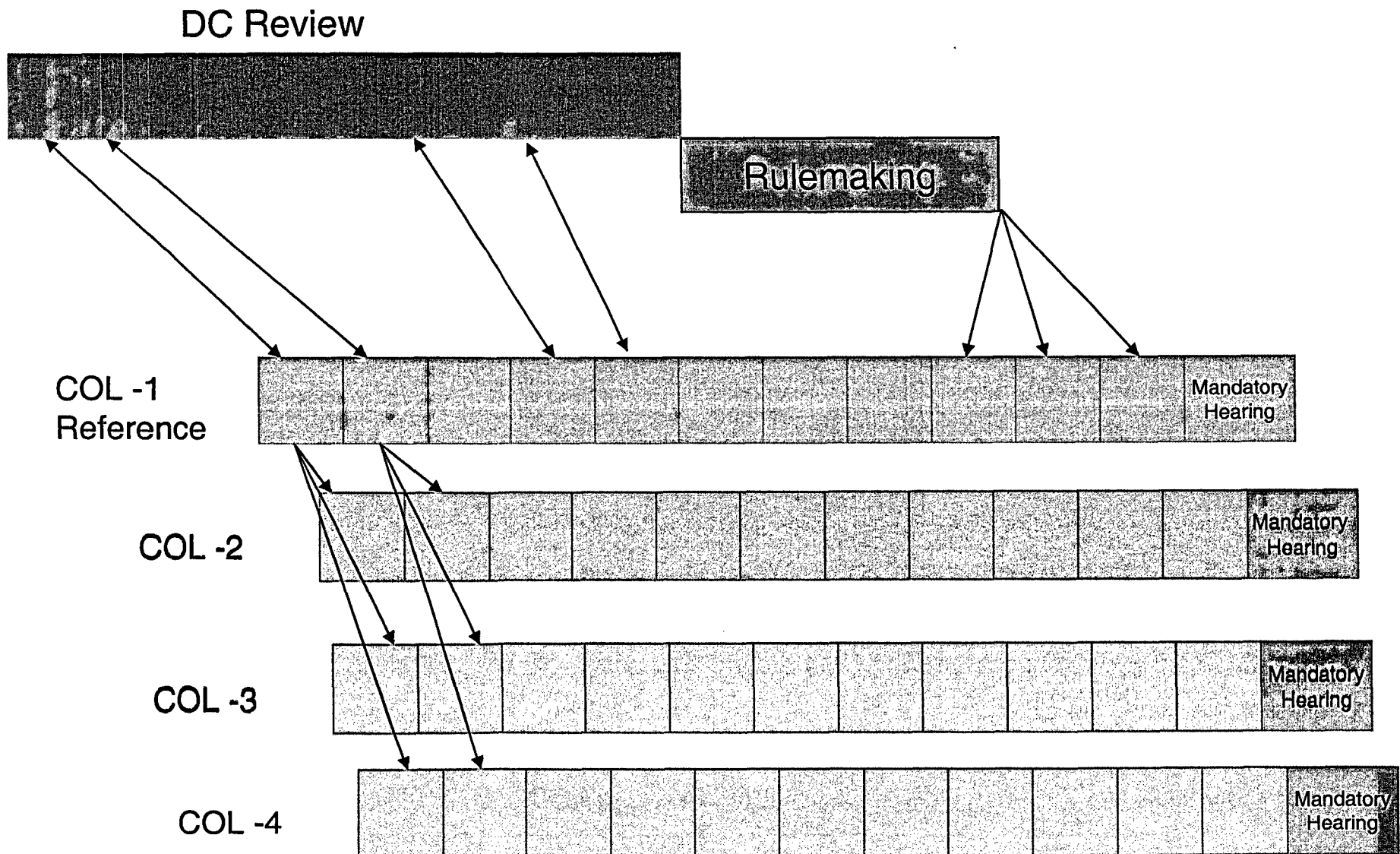
Strategies for New Reactor Licensing

- **Design Centered Approach**
 - **Maximize Standardization**
- **Optimize Review Process**
 - **Infrastructure Development**
 - **Detailed Planning**
 - **Pre-application Reviews**
 - **Accountability - quality and schedule**
 - **Management Attention**
- **Increase Qualified Resources (internal and external)**

Design-Centered Review Approach

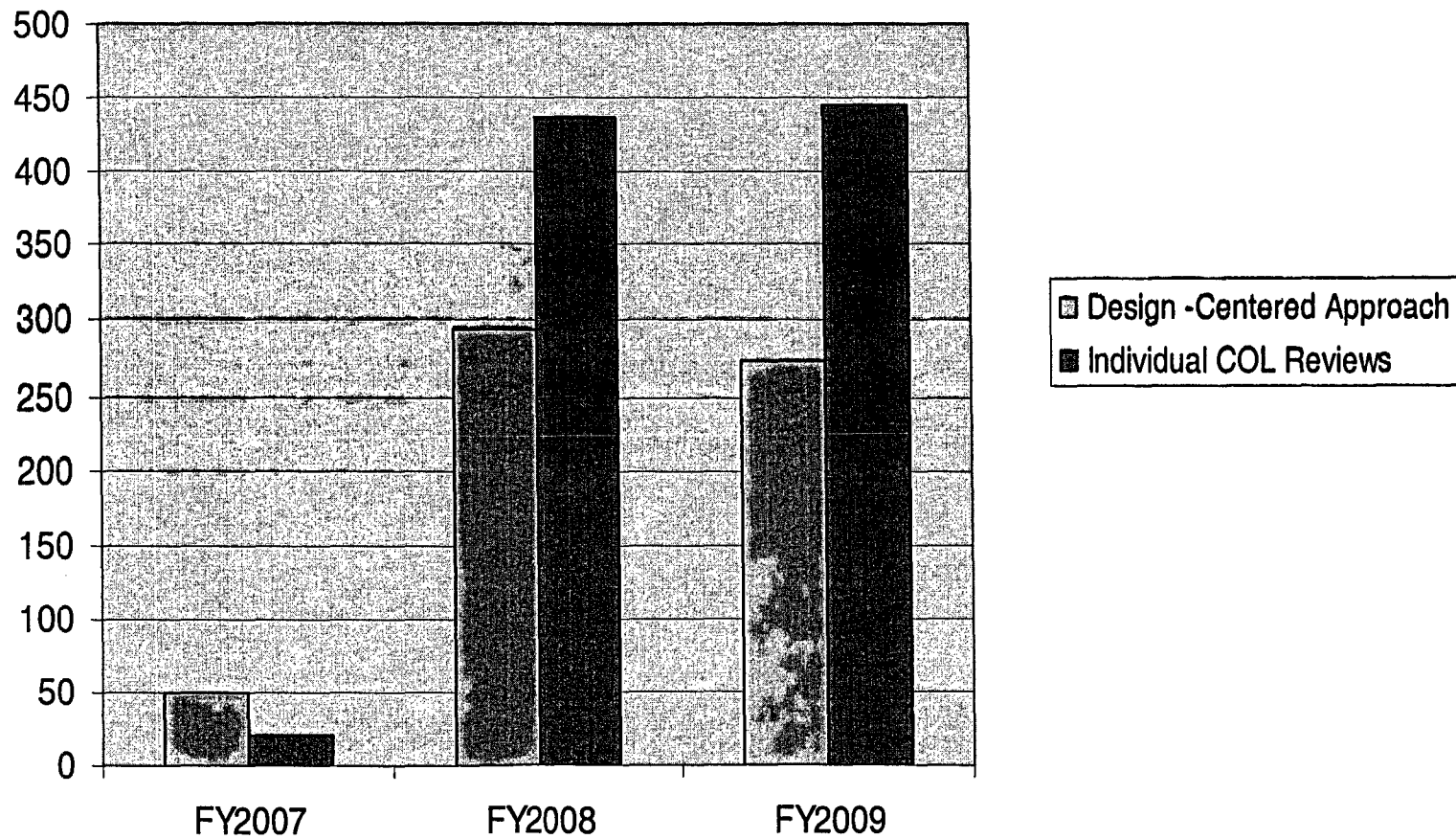
2005	2006	2007	2008	2009	2010	2011	2012
<h2>AP 1000 Program Review</h2> <div> <div></div> <div>COL</div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>							
<h2>ESBWR Program Review</h2> <div> <div></div> <div>COL</div> <div></div> <div></div> <div></div> </div>							
<h2>EPR Program Review</h2> <div> <div></div> <div>COL</div> <div></div> </div>							
<div> <div>Design Certification Review</div> <div>COL Review</div> <div>ESP Review</div> </div>							

One Decision – Multiple Applications



Similar approach used on site reviews (environmental and safety)

Illustration of Resource Optimization for COL/EIS Reviews
3-30-06



Key Infrastructure Activities

- **Develop Combined License (COL) Regulatory Guide**
- **Update and Revise NUREG-0800, “Standard Review Plan”**
- **Develop Construction Inspection Program**

Draft Guide DG-1145

Combined License Applications for Nuclear Power Plants (LWR Edition)

Objective: Regulatory guide which provides application content and process guidance for combined license applications submitted under 10 CFR Part 52 that reference a certified design, an early site permit, both, or neither

Structure: 4 Parts - estimate length: 500 total pages

- Standard form and content
- Additional Information
- Applications referencing certified designs or early site permits
- Miscellaneous topics related to part 52 processes and application content

DG-1145

(continued)

Schedule

- Started January 2006
- Individual sections being drafted by new reactor staff, technical branches, contractor
- Post on NRC website as technical content sections receive branch concurrence
- Accept public comments on these “draft work-in-progress” sections
- Discuss in subsequent monthly public workshops (first workshop March 15)
- Draft scheduled for June 2006
- Final guide to accompany final Part 52 rulemaking

DG-1145

(continued)

Benefits:

- Providing COL applicants avenue to dialogue with NRC on COL applications
- Identifying needs for standard review plan updates
- Informing design certification review
- Preparing staff for review of COL applications

Challenges:

- Supporting monthly public meetings
- Completeness of draft sections of guide
- Defining scope of COL review
- Scope and timing of first-of-a-kind engineering (FOAKE) inspections
- Environmental finality of EIS from ESP in COL application review

SRP Update Revised Plan

- SRP by March 2007
 - SRP section revisions need to be in effect 6 months prior to the docket date of an application - 10 CFR 50.34(h)
 - Design centered approach increases need to have guidance in place at the start of the COL and remaining DC reviews
 - COL applications anticipated starting September 2007

SRP Update

(continued)

- Issuance of LIC-200, Rev 1, May 8, 2006
 - Detailed instruction on “how to” do the update
 - Scoping process on front end
 - Issuing SRP section revisions for use and comment instead of Draft SRP sections
- Opportunities to engage ACRS
 - Use scoping results to facilitate planning
 - Evaluate which sections ACRS would like to consider and timing of consideration

Regulatory Guides

- Coordinate with SRP updates
- Prioritize Regulatory Guides to be updated
 - Affirm RGs which do not need to be updated
 - Scheduling those which can be completed within the March 2007 timeframe
 - Qualifying RG applicability within the specific SRP sections, as appropriate
 - Identifying RGs in which the technical basis is still being developed beyond March 2007

Construction Inspection Program Development

Mary Ann M. Ashley
Team Leader, Construction Inspection
Program Development
Division of Inspection and Regional Support, NRR

CIP Development Challenges

- Inspecting construction activities worldwide
- Scheduling inspections based on licensee schedules
- Informing our ITAAC inspection sample selection
- Linking construction activities to ITAAC
- Linking an inspection finding to an ITAAC
- Issuing timely inspection reports
- Ensuring an Enforcement Policy that reflects Part 52 needs
- Ensuring the inspection staff is adequately trained

CIP Program Structure

- Inspection Manual Chapters – keyed to organization of approach in 10 CFR Part 52
 - IMC-2501: Early Site Permits
 - 5 Inspection Procedures - issued and in use
 - IMC-2502: Inspections to Support Issuing a COL
 - 9 Inspection Procedures issued and ready for use
 - IMC-2503: Inspections of ITAAC-Related Work
 - 25 Inspection Procedures – addressing the specific attributes of the different kinds of ITAAC – to be issued over next 12 months
 - IMC-2504: Inspections of Non-ITAAC Work
 - Approximately 150 Inspection Procedures – addressing the programs and processes common to all work activities; pre-op and startup testing; operational programs – to be issued over the next 18 months

CIP Inspector Resources

- Three types of inspectors are needed
 - Off-site fabrication inspectors
 - Construction resident inspectors
 - Construction specialist inspectors
- Inspectors are needed at different times
 - Off-site fabrication
 - Resident – 2 years after COL application submitted
 - Specialist – when on-site construction begins
- How many inspectors are needed?
 - Up to 3 full-time resident inspectors needed for each plant and 1 full-time scheduler with technical knowledge
 - Up to 3 specialist inspectors are needed for each plant

Conclusions

- **NRC is preparing for an unprecedented level of new reactor licensing activity**
- **In order for the NRC to accomplish our mission to ensure adequate protection of public health and safety for new reactors licensed under 10 CFR Part 52 (given resource constraints, schedule pressures, and stakeholder expectations), a standardized, uniform, design entered approach to both COL application development and NRC review is essential.**