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PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Wednesday, July 18, 1990

The Commission met in open session, pursuant to notice, at 2:00 p.m., Kenneth M. Carr, Chairman, presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission
KENNETH C. ROGERS, Commissioner
JAMES R. CURTISS, Commissioner
FORREST J. REMICK, Commissioner

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STAFF SEATED AT THE COMMISSION TABLE:

WILLIAM C. PARLER, General Counsel

ANDREW BATES, Office of the Secretary

JAMES TAYLOR, Executive Director for Operations

DR. THOMAS MURLEY, Director, NRR

MARTIN VIRGILIO, Chief, PTSB, NRR

WILLIAM TRAVERS, Assistant Director for Special Projects, NRR

REBECCA NEASE, Technical Assistant, NRR

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

2:00 p.m.

CHAIRMAN CARR: Good afternoon, ladies and gentlemen.

An issue currently before the Commission is the question of how detailed an application and design certification must be under Part 52 in order to support both a safety review by the NRC and to encourage standardization.

On Monday, July 16th, 1990, the Commission was briefed by the industry with their views on the subject. Today, the Commission will be briefed on this matter by the NRC staff.

I understand that copies of the briefing slides and the staff's paper, SECY-90-241, are available at the entrance to the meeting room.

Do my fellow Commissioners have any opening remarks?

Mr. Taylor, you may begin.

MR. TAYLOR: Good afternoon. With me at the table, to my far left, Rebecca Nease, Marty Virgilio. To my right, Doctor Murley and Bill Travers from the Office of NRR.

With regard to the subject of the span of design detail, the staff has prepared and presented

options on this subject rather than make a specific recommendation because we feel collectively that this is such a major policy issue and will have deep effect on the work of the staff and will effect whatever future plants lie ahead.

The paper that the staff has prepared on the subject I understand has been made publicly available. I believe there are copies at the entrance to the room, as the staff suggested to the Commission.

With that introduction, I'll turn to Doctor Murley.

DOCTOR MURLEY: Thank you, Mr. Chairman, Commissioners. There are two policy issues that we have posed for the Commission in the paper. The first one is the level of design detail. As you mentioned, Mr. Chairman, the other is whether the two-tiered approach for certification as laid out by NUMARC last Monday is an acceptable approach for certification. Both of those, we believe, are important issues for the Commission.

We'll start out talking about options and the information that we've been able to gather on level of design detail and what it means. At the end, because there were some questions that came up Monday with regard to staffing and how we would conduct our

reviews, I'd like to take a few minutes at the end and talk about that.

With that, Marty Virgilio has done a large amount of work with Rebecca Nease and others on our staff, talking with members of the utility industry, the architect/engineer industry and also the reactor vendors. They've been able to pull together the information and I'd like to turn it over then to Marty.

MR. VIRGILIO: (Slide) Could I have the first slide, please?

As Tom pointed out, there are two policy issues that we addressed in our paper. Back on April 27th, the staff briefly discussed these policy issues with the Commission and since that meeting we have reviewed Part 52 and conducted meetings with CE, GE, Westinghouse, Stone and Webster, Duke, Northeast Utilities and others and have conducted many internal meetings on this subject. As a result, we've prepared our paper that we presented to you.

(Slide) If I can have the next slide, please.

In examining the level of design detail, we found three variables associated with the contents of the application, what's available for audit, and

material in the certification. Section 52.47 makes applicable Parts 20, 50, 73, 100 with regard to technical information and requires a proposed technical resolution to all the medium and high priority safety issues in 0933. It requires ITAACs, inspection, tests, analysis and acceptance criteria. It also requires that PRA, site specific parameters postulated for the design and a conceptual design for the site specific features not specifically included in the application.

When we read this section, we view it to require three things, sufficient detail for us to judge the acceptability of the ITAACs, sufficient detail for us to reach our final conclusions on all safety questions, and sufficient information to allow the applicant to prepare procurement specifications and construction and installation specifications.

We read this section to require, at the minimum, what is equivalent to an FSAR at the OL stage, minus the site specific and as-built information typically included in an FSAR.

In the next variable, we look at material available for audit. What we see is that information contained in procurement and construction and installation specifications be completed and available

for the staff if necessary for us to make our safety findings. We see that this section requires, at a minimum, performance characteristics to be included. At the other end of the spectrum, you could see final specifications including commercial information.

Then last, material in the certification. The rule is not very prescriptive on what is to be included in the certification. The statements of consideration imply that the certification will be no more restrictive than Section 50.59 is today. How much detail that is present in the certification, it goes on to say, would have to be resolved in the rule certifying the design. What is clear to us is that what is included in the certification is what is guaranteed in terms of standardization through the process.

(Slide) If I can have slide 3, please.

In examining this, we found four levels of detail and we've chosen the four levels for illustrative purposes only. It's not to say that there are only four levels. They are a spectrum of choices. We've just picked four. On different systems, you may want different levels of details. It's not to say that you pick one level and you apply that for all systems.

In our paper, we examined the HVAC system in some detail. We looked at the differences in levels as a result of varying the contents of the application, the material available for audit and what would be included in the final certification. In our paper, we've included a table. It's Table 1 and it shows at the various levels what one would see.

(Slide) If I can have the next slide, number 4, please.

Looking first to level 1, in our application we see a number of features that constitute the essentially complete design. In this case, we see a biddable, completely designed facility with identical physical, functional and performance characteristics.

I draw your attention to the line, component performance characteristics. Here what we're talking about is heat removal capabilities, pressures, temperatures, flow rates, sizes and filter efficiencies when we looked at the HVAC system. There's also a significance associated with that line and that's typically or traditionally how we've done our reviews pursuant to the standard review plan.

Right below that line you'll see physical attributes, orientation, location for components.

Here we're talking in the HVAC system about supply and exhaust fan type. We're talking about the location and orientation of components. You're talking about the check valve type.

Next line down, geometric aspects for suspended components. What we're talking about here is cable trays, exact locations, piping, the routing of conduit. In the next line we talk about component support/restraint specifications. Here you're talking about component weights, mounting and support details.

All of this information, including the ITAACs associated with this information, allow the staff to reach its final conclusions on safety and standardization questions.

COMMISSIONER CURTISS: Marty, before you go on, that chart -- and since this question will come up, I think, in the subsequent ones, you indicated that line there about two-thirds of the way down reflects the SRP level of detail. You also indicated that we could in how we approach this question vary the level of detail depending upon the system and its importance. Is the -- refresh my memory. Does the SRP do that now for a plant? Do we get different levels of detail depending upon the system in current SRPs?

MR. VIRGILIO: Yes, it does.

COMMISSIONER CURTISS: So, this line might move up and down depending upon the system is what you're saying?

MR. VIRGILIO: That's correct. And the feed water system is a good example of where you would have today maybe some less detail than you would have in the reactor protection system.

COMMISSIONER CURTISS: Do we have any systems today where we in the SRP require a level 1 level of detail?

MR. VIRGILIO: No, not by the SRP today.

CHAIRMAN CARR: And the SRP today permits you to go back and ask for anything you want to that you're not able to get from what is submitted?

MR. VIRGILIO: Certainly it does if you need that information to develop your safety findings.

CHAIRMAN CARR: So, it's just a guide, not --

MR. VIRGILIO: It certainly is.

CHAIRMAN CARR: It's not something that tells them what to submit.

MR. VIRGILIO: Right.

CHAIRMAN CARR: Okay.

COMMISSIONER CURTISS: Let me sharpen my

question a little bit then. In the Qs and As process that follows the application, do we get through the Qs and As a level of detail that would -- perhaps with the exception of requiring the specs to be included in the application, do we get a level of detail that goes up to level 1?

MR. VIRGILIO: Not typically. Not typically. You may see then unless -- you want to talk about level 2. I think maybe that's --

DOCTOR MURLEY: Excuse me, Marty. We have to keep in mind that the process today is a two step process and so at the early step, the construction application stage, we really are focusing on conceptual information. At the final stage, we have a plant that we can go and look at. And so, to some extent, there is even more detail to help us in our review than would be in a level 1. We would actually have a plant to go and look at in certain structural areas, for example. So, it's hard to strictly compare the way we do today --

CHAIRMAN CARR: Before approving the operating license, you mean?

DOCTOR MURLEY: Before approving the operating license, we have the plant built.

MR. TAYLOR: All the stress analyses are

done on piping and so forth. Actually, the procured date is available for an operating license.

COMMISSIONER CURTISS: Okay. Go ahead.

MR. VIRGILIO: (Slide) Okay. If we could go to slide 5.

Level 2 provides an essentially complete design that includes physically similar identical functional and performance characteristics. Again, I draw your attention to the line at component performance characteristics. Everything above the line is the same as it was for level 1.

With regard to level 2, we look at key physical attributes for certain components. Based on lessons learned from operating experience, we would select those physical attributes that provide most risk sensitivity or we have seen the most problems from operating experience. Again, for example, we would look at maybe check valve type or in the HVAC system we would look at maybe the coupling between the fan and the motor for the supply and exhaust fans.

We would not, in level 2, have exact location and all physical attributes for components. We wouldn't, for example, have for a heat exchanger the exact location of the nozzles. But this information would still provide the staff sufficient

standardization questions and would allow us to draw final conclusions on safety matters.

COMMISSIONER CURTISS: Back up on the level 1 option. I meant to ask this question. You point out in the paper that that's probably incompatible with existing Part 52. Is that because we would be requiring procurement construction installation specs in the application?

MR. VIRGILIO: Yes. That's principally the reason why we saw that. That might not conform to Part 52 as it's currently --

COMMISSIONER CURTISS: Are there other inconsistencies with Part 52?

MR. VIRGILIO: That was the principal reason.

COMMISSIONER CURTISS: The only one? Okay.

COMMISSIONER REMICK: Let me ask a question on level 2 before you leave it. You have key physical attributes for components under the line. If I look at table 1 for physical attributes and configure each component, you show that as not expected in application. It seems to me they're inconsistent with one another.

MR. VIRGILIO: What we were looking -- if

you look at below the line of traditional standard review plan, you're starting to get the physical attributes of cooling coil type, heating coil type, fan type, fan drive. It's a matter of all physical attributes in line 8.

COMMISSIONER REMICK: Oh, I see.

CHAIRMAN CARR: The word "key" is the key to that problem.

COMMISSIONER REMICK: Okay.

MR. VIRGILIO: Yes.

COMMISSIONER REMICK: All right. Okay.

MR. TAYLOR: In 1, you'd know --

CHAIRMAN CARR: You get them all whether you need them or not.

COMMISSIONER REMICK: Okay. All right.

COMMISSIONER CURTISS: One final question on level 1 and 2. You note in your paper that these two levels of detail, unlike level 3, would require what you call the standardization portion of the review. Two questions. Number one, is that implicit in the safety finding type review that you make and the reference in Part 52 to you have to submit that information necessary to make the safety findings or do you view it as a separate finding beyond the safety finding?

Two, I guess I'd like to know as you go through here, either at this point or as you discuss that, what the standardization portion of the review would focus on. Clearly, that's the focus of Part 52 and perhaps if there is a distinction between the safety part of the review and the standardization part of the review, which I've always viewed as a single entity, maybe we ought to elicit that.

MR. VIRGILIO: If we go back and think about what drives the review today by the technical staff, it is the standard review plan. Right now, as I've pointed out, by the line and on table 1, you can see that the standard review plan doesn't go into some of the additional features that are shown below the line.

I'm not sure I would say a separate finding, but certainly we would have to go back and revise our review guidance to focus the staff and the applicants on the additional information that would be needed.

COMMISSIONER CURTISS: Okay. I take it in what you're saying here that since you view level 2 standardization and that portion of the review as implicit in the Part 52.47 contents of application where it focuses on that information necessary to make

the safety findings?

MR. VIRGILIO: If we select option 2.

(Slide) Let's take a look at application under level 3 and that's slide 6.

Here, I would characterize essentially complete design as identical functional and performance characteristics. Again, all the items above the line are the same and the same in both 1 and 2. Here, with regard to the HVAC system, you would have the principal components of the HVAC system identified on the P&IDs and plant layout drawings. They would be in a specified room and they would perform functions as stated. Again, you would wind up with functional and performance requirements standardized.

(Slide) Go on to level 4 for a minute, slide 7.

What we've shown is the contents of the application would include essentially what we've found in our PSAR-type reviews, although this is not acceptable for a single step licensing process. We found that in the traditional two-step licensing process this approach was acceptable.

(Slide) Moving on to talk about the audit process, slide 8, in all levels the staff will conduct

its audits necessary to support its safety findings. In levels 1 and 2, audits may be driven by the additional objectives of ensuring standardization as shown in the application. What would not be included in the application is shown in 1 and 2. In the slides I presented earlier, we would go out and pursue through the audit process. Again, if we needed any information in order to support our safety findings, we would certainly go out into the field and require that information be developed if it wasn't already developed and we would audit it. If it was material to our safety findings, they might even be drawn into the application and included in the certification.

(Slide) Go on to slide 9 and we'll examine in the next several slides what material will be included in the certification.

In level 1, what we propose to include is essentially the entire application in the certification. This information would allow us to certify and lock in our safety findings as well as the additional features we reviewed in order to ensure standardization. Here with level 1 you get the maximum degree of standardization that we can guarantee through the regulatory process. You get the maximum numbers of issues resolved at the

certification phase. You also incur the highest cost and you have the most limited flexibility, so much so that a licensee may not be able to deal with construction of the facility.

During the construction process, you're going to have deviations develop, some of them that are acceptable as is. Treatment of these deviations, unavailability of components over the life of the certification and improvements to existing technology or the incorporation of new technologies would all be incorporated through the 50.12 process.

COMMISSIONER CURTISS: Marty, you touched on the deviations and the interferences question. Is it, as a rule of thumb, generally true that the more design detail that you have, the fewer interferences you're going to face?

MR. VIRGILIO: With today's computer assisted drawings, I think that we're going to see less deviations than we've had in the past. But I'm not sure that developing the design details now will limit those. I'm not sure I understand your question completely.

COMMISSIONER CURTISS: I guess I'm just searching for, as I say, a general rule of thumb which would be more detail.

CHAIRMAN CARR: Well, it might limit them, but it wouldn't eliminate them perhaps.

COMMISSIONER CURTISS: Wouldn't eliminate them.

MR. TAYLOR: It wouldn't eliminate them.

COMMISSIONER CURTISS: But it would reduce -- would it minimize the number of -- would you expect --

MR. VIRGILIO: This information -- I'm sorry, excuse me.

COMMISSIONER CURTISS: Go ahead.

MR. VIRGILIO: This information would be developed before the combined operating license. So, whether it's developed now or developed later, essentially the same information would be available. Now, whether that would help you limit the construction interferences, I'm not sure I understand the nexus.

COMMISSIONER CURTISS: I guess the distinction is the question of how broad a 50.59 provision the vendor needs during that period between -- after certification and before reference in a COL?

CHAIRMAN CARR: Let me follow-up on that. What's the amount of time between the certification

and the combined operating license and what did you say would be available, the difference?

MR. VIRGILIO: The time could be as short as just a few years or it could be quite a bit longer. I don't believe we're going to see a combined operating license until you have an applicant.

CHAIRMAN CARR: But you implied that there's be a lot more information available --

MR. VIRGILIO: At that time.

CHAIRMAN CARR: -- at that time than there would be at the time of certification.

MR. VIRGILIO: At that time when an applicant comes forward for a combined operating license, you will have the rest of the design details, I think, pretty much finalized. You will have a lot more information available at that point in time before you start construction of the facility.

DOCTOR MURLEY: In other words, an applicant -- once he has a certified design, an applicant who wants to order one of those and build one would get an architect/engineer and he would fill in the details. All the site specific details would have to be filled in. Depending on what level we require here to be in the certification, there will still be some additional engineering that needs to be

done that would have to be brought to the combined operating license.

CHAIRMAN CARR: Well, what point in construction time do you foresee asking for a combined operating license?

DOCTOR MURLEY: Before any work is started at all.

CHAIRMAN CARR: Before they cut any metal, right?

DOCTOR MURLEY: Yes. Yes.

CHAIRMAN CARR: Or dig any holes.

DOCTOR MURLEY: That's right. But my point was and Marty's point was there still needs to be some engineering that's done even after the design is certified --

COMMISSIONER CURTISS: Let me come at it from a different angle.

DOCTOR MURLEY: -- because you have to match it to a site.

COMMISSIONER CURTISS: What's do you estimate the total --

CHAIRMAN CARR: Depends on the level of certification.

DOCTOR MURLEY: And exactly right. So, the part that's below level 1, so to speak, plus the

site specific part, all that would have to be -- or generally a large part of it would have to be done for the COL hearing process.

COMMISSIONER ROGERS: Do you have any idea of what percentage of the total engineering design that would be if -- starting with a level 1 as the most extreme?

DOCTOR MURLEY: Yes. Marty and Rebecca have looked at that.

COMMISSIONER ROGERS: What additional --

DOCTOR MURLEY: Perhaps you could --

MR. VIRGILIO: Let me let Rebecca walk you through what we've done in all of the different levels of detail.

COMMISSIONER ROGERS: We can come back to it, if you want.

MR. VIRGILIO: No, we can do it right now.

COMMISSIONER CURTISS: Let me add a point to that. Maybe start out or discuss what you estimate to be the total non-site specific engineering cost of a facility. We've heard the billion dollar level, and then I've seen your estimates in here of the numbers that you're talking about, 600 for level 1. I think we'll get a sense of how far along in terms of percentage we are on non-site specific engineering

work if you add them.

MS. NEASE: All right. You have to look at engineering as two parts. There's engineering design, pure design, and there's engineering implementation. We have discussed with industry vendors and AEs and the utilities and we come up with something close to $875 million to $1.4 billion for total engineering effort. That's implementation and design. For level 3, which is what we characterize as the utility's position, they seem to think that they're going to have 50 to 60 percent of design completed at certification for a cost of $150 million to $350 million and that's in our paper for level --

CHAIRMAN CARR: Wait a minute. That's of the total of the two designs?

MS. NEASE: That's just the design, not the implementation.

CHAIRMAN CARR: The first design?

MS. NEASE: The first design.

CHAIRMAN CARR: So, 50 percent of the first design maximum.

MS. NEASE: Right.

CHAIRMAN CARR: 50 to 60. Okay.

MS. NEASE: Correct. In level 2, we estimate 80 percent of the engineering design will be

complete, plus maybe one or two percent of the implementation. But basically, 80 percent of the design will be complete for $400 million. In level 1, we see essentially all of the engineering design complete, maybe a third of the engineering implementation complete for something greater than $600 million.

CHAIRMAN CARR: Well, now, let's extrapolate that to the issuance of the combined operating license.

MS. NEASE: Okay.

CHAIRMAN CARR: What do you have at that point in time?

MS. NEASE: Well, for level 3, if I can figure this out, 50 to 60 percent of your engineering design is done for level 3 at certification and basically no engineering implementation and certification. However, by the time you get to your combined operating license stage, you should have had almost all of the engineering implementation completed. By the time you're ready to go in and start digging, you should have almost the same amount as the total design.

CHAIRMAN CARR: So you'll get to a level 1 engineering design by the COL and how much of the

implementation design?

MS. NEASE: All of the implementation-- well, no, no, no. I would say maybe 95 percent of the implementation design.

COMMISSIONER CURTISS: What level?

MS. NEASE: At level 3, by the time you have your --

CHAIRMAN CARR: COL.

MS. NEASE: By the time you have a COL. That means you have a site and you have a customer.

CHAIRMAN CARR: And he gets a COL.

MS. NEASE: And he goes out and he's ready to go.

CHAIRMAN CARR: He's got everything in his pocket but those five percent that perhaps are site specific or is that site specific still got to be done at the time of COL?

MS. NEASE: I would suspect he has a lot of site specific done by them.

CHAIRMAN CARR: Okay.

COMMISSIONER CURTISS: But if I do my arithmetic right here, at the level 3 level of detail, at the certification stage as opposed to the COL, which you estimate to be $150 to $350 million, against a total cost of $875 million to $1.4 billion for total

implementation and design, what's left for the utility under level 3, as I say, if I do the arithmetic right, is $525 million to $1.25 billion?

MS. NEASE: That's close, yes. They have, I would say -- well, 60 percent of your engineering and implementation is completed at the time you have your certification. That's basically 20 to 30 percent of your total engineering effort. So, the utility has left on its plate maybe 70 percent.

COMMISSIONER CURTISS: And that could, under level 3, the level 3 approach, I gather the individual utilities could approach those issues any way they want to?

MR. VIRGILIO: If you mean collectively--

COMMISSIONER CURTISS: No, individually.

MR. VIRGILIO: Spreading the costs out? There's a lot of first of a kind engineering built into those costs as well.

COMMISSIONER CURTISS: No, I mean the implementation and the design --

CHAIRMAN CARR: What he really means is what we've got guaranteed is what we bought at the level 3 level. That's all we know for sure is the way it's going to be done.

DOCTOR MURLEY: Mr. Chairman, I think this

is how we are interpreting, the staff --

CHAIRMAN CARR: I understand.

DOCTOR MURLEY: -- what's required at the COL stage in Part 52. Perhaps General Counsel might -- I don't know if he has any different views, but that is how we think most of the work would have to be done by then.

MR. PARLER: Certainly I'd approach the problem through the eyes of a lawyer, one that has been working in the area for a couple years. We were trying to put in place a process that would, under the authority that we have, enable us to move in the direction of one step licensing and resolving issues, design issues, site issues, or other issues early in the process rather than after the other plant had been substantially constructed.

A big issue that was focused on in the evolution of this rule was the issues that would be left open prior to authorization. People were almost in a frenzy about that, it seemed to me.

In order to take the position that I concluded could be legally taken, it is fairly clear to me that just about everything has to be on the table and resolved at the time the combined license is issued with the exception of things which must, of

necessity, await the completion of construction, such as construction of the plant in accord with the terms of the provisions of the combined license, the so-called ITAAC provisions, and other thing about the readiness of operation before the authorization to operate would be permitted. So, that would be my answer.

COMMISSIONER CURTISS: I had one other question that may effect the cost estimates, a two part question.

First, if the vendor is required to have procurement specs available for audit, does that mean that the vendor essentially has to have level 1 detail already prepared? In other words, if you define-- and I realize there's a difference in the definition of procurement specs. But if you define procurement specs as ready for a biddable design, do I read that correctly to mean that where we would call upon that vendor to have certain specs ready, procurement specs, that he would have to be -- the vendor would have to have the underlying level 1 design detail in order to put out a biddable procurement spec?

MS. NEASE: Are you talking about level 3? If they're coming in at a level 3 and that's --

COMMISSIONER CURTISS: No, I'm asking a

general question, procurement specs if you define them as that which would permit you to go out with a biddable design. Does that mean -- regardless of the level here, does that mean that you have to have, in effect, what you've described as level 1 design detail because you're talking about a biddable design?

DOCTOR MURLEY: Let me answer that by using an example that we -- when we asked ourselves that very question, we kicked around. It would be, for example, primary coolant pumps. In going out for bids, you would not specify the exact locations of the inlet and outlet pipes and that sort of thing. You would specify performance specifications and electric power demands and that sort of thing. So, you would know quite well what you're getting, but different manufacturers would have different proprietary means for designing their pumps and so forth.

So, they would have different inlet and outlet nozzles and they would have different weights, so that you would not have the information available generally that we are contemplating here in level 1 because in level 1 we'd expect you'd have to have a great detail in order to do the seismic analysis.

COMMISSIONER CURTISS: Because of performance specs you wouldn't have that available.

My question is, the rule envisions that there would be procurement specs available for audit somewhere.

CHAIRMAN CARR: I think the focus is on what does available for audit mean? Does that mean they'd then have to go prepare it so you could look at it, or does it have to be available if you called for it? I must admit, when I read through the rule --

DOCTOR MURLEY: No, I -- I --

CHAIRMAN CARR: -- when a thing is available for audit, that meant I could go look at it if I needed.

COMMISSIONER CURTISS: Really two questions.

DOCTOR MURLEY: That's a separate question. That --

COMMISSIONER CURTISS: Do you have to have it available and if you have to have it available, does that mean that because of the nature of procurement specs, if you define them as leading to biddable designs --

DOCTOR MURLEY: Maybe I'll answer -- I thought your question was does the requirement to have procurement specs drive us to having level 1 --

COMMISSIONER CURTISS: Does it, in effect, mean that the vendor has level 1 design?

DOCTOR MURLEY: -- and I thought not.

MR. TAYLOR: It does not drive you to level 1.

DOCTOR MURLEY: Right.

MR. TAYLOR: Because of the reasons that I believe Doctor Murley began to enumerate and that is all of the connection -- level 1 would include the details of the pipe connections to the specific pumps.

COMMISSIONER CURTISS: You've indicated that level 1 in effect gives you a biddable design, as you've defined it.

DOCTOR MURLEY: Yes. For example, you've done the seismic analysis --

CHAIRMAN CARR: A buildable design.

MR. TAYLOR: Biddable and buildable.

COMMISSIONER CURTISS: Right. And if you under level 2 call upon the vendor to have procurement specs available in certain areas and if those are defined as biddable procurement specs, doesn't that mean that in level 2 where you call for procurement specs you are essentially asking for level 1 design detail?

I'll pursue it later. I don't understand why that isn't true.

DOCTOR MURLEY: Well, I think I can give

you an example, because the procurement spec for a pump, a primary pump, can allow for different designs to come in. They produce the same flow, they have all the characteristics you want. Now, the fact that slightly different designs can come in mean that you mount them differently on the pipes, that your seismic analysis is a little different and that sort of thing.

MR. TAYLOR: Foundations and --

DOCTOR MURLEY: Foundations might be a little different.

COMMISSIONER CURTISS: It depends on how tight the procurement spec, I guess, is and I gather there are different views about how you define that.

DOCTOR MURLEY: Yes. We had in mind that the level 1 would include all the exact information so that you would have done the seismic analysis and you had the locations. So that if company X wanted to bid on that particular procurement spec, he would have to maybe build a design that was not his design. He'd have to build somebody else's design, whereas for the level 2 and the level 3 level of detail that we're talking about here, that kind of detail would be done after the applicant ordered the plant, but before he came in for a COL. He would have to do that engineering once he found out who the vendor was.

COMMISSIONER CURTISS: Okay. Go ahead.

COMMISSIONER REMICK: Let me follow on. On the level 1, the example you used --

DOCTOR MURLEY: Well, he would, yes, select a design --

COMMISSIONER REMICK: Or either write specifications as specified where the inlet, outlet and all those things were, the way it was.

DOCTOR MURLEY: Exactly right.

COMMISSIONER REMICK: Otherwise, he would have to have selected a pump.

DOCTOR MURLEY: Right. And then there may be competitive reasons why that is not feasible, but that could mean that company X would have to be building company Y's design if they wanted to bid.

CHAIRMAN CARR: But he's going to have to do that anyway between certification and COL.

MR. TAYLOR: He should by that time.

CHAIRMAN CARR: From what you told me.

DOCTOR MURLEY: Yes. In other words --

MR. TAYLOR: And then design the foundations, the connecting piping, cable work.

CHAIRMAN CARR: Okay.

COMMISSIONER REMICK: The utility would have selected the pump?

DOCTOR MURLEY: The utility would have selected the --

COMMISSIONER REMICK: In one case we're talking about the vendor having to select and in the other case we're talking about the utility for the COL selecting a pump. They're two different things.

CHAIRMAN CARR: They're probably not. I mean I imagine it will be both of them in either case, but --

COMMISSIONER REMICK: Not necessarily. I can see --

CHAIRMAN CARR: -- it wouldn't have to be.

COMMISSIONER REMICK: I could see a certified design without a buyer.

CHAIRMAN CARR: But there's nothing that keeps any pump manufacturer from building a pump to fit that --

COMMISSIONER REMICK: No, that's true.

CHAIRMAN CARR: -- spot.

COMMISSIONER REMICK: That's true.

CHAIRMAN CARR: He's going to -- if the job is there, he'll hang those inlets and outlets wherever you want them for a price.

COMMISSIONER REMICK: For a price.

CHAIRMAN CARR: Let's proceed.

MR. VIRGILIO: (Slide) All right. We can continue with slide number 10.

Under level 2, we certify essentially all the information that's included in the application and what's come from our review and audit that's material to our safety finding and support the standardization that we're trying to achieve through level 2.

Here you get a substantial degree of standardization and resolve a significant number of issues at the certification phase. There is a cost, as we've discussed. In this case, there is some flexibility outside of 50.12. You're not certifying all the physical attributes under level 2. You're not certifying the exact location. Geometric aspects of suspended components are not being certified, nor is there support and restraint data being certified. This will allow for some changes through the construction process.

COMMISSIONER REMICK: It's at this point where I have a little difficulty and I realized when you wrote this you didn't know exactly what the industry was coming in with. But when they made a presentation -- you do say in here that your level 3 is very close to what the industry is proposing, but they proposed, as I understood it, that they would

provide not only room size but the location of major components in those rooms and orientation.

So, presumably under level 3, you're saying that as you see it, that wouldn't even be necessary in level 2. There seems to be an inconsistency here and I can understand why. But we addressed that question a little bit in depth because they did say that in a room they would address the location of the equipment and orientation. That surprised me and I asked the question and they said yes, they would be addressing that, presumably in level 3, if level 3 is consistent with what they were proposing.

MR. VIRGILIO: We discussed the application under level 3. I talked about the P&IDs and the layout drawings and that's what they have in mind that they would have. They would know the pump is in the room, they would know the valve is in the room, they would know the heat exchanger is in the room. But if it was of substantial size, they would know the orientation of those components.

COMMISSIONER REMICK: Yes. They did not say if of substantial size, but that might be what they meant.

CHAIRMAN CARR: I think they did say

safety significant ones.

COMMISSIONER REMICK: Yes, I presume that. I presume that.

MR. VIRGILIO: I think industry has characterized themselves in a meeting we had with the ACRS as being somewhere around a 2.5.

COMMISSIONER REMICK: Okay.

COMMISSIONER CURTISS: On level 2, you're going to certify everything that's in the application. Do I understand that correctly?

MR. VIRGILIO: Yes, essentially the entire application.

COMMISSIONER CURTISS: On Monday, the industry made the point, in fact read our language back to us, that in the statement of considerations the Commission envisioned that there will be less detail in the certification than in the application. Assuming that's an accurate reflection of the Commission's sentiment, how do you reconcile a level 2 approach that requires everything in the application to be in the certification?

MR. VIRGILIO: I would have a difficult time justifying the level 1 approach in that regard, but I think with level 2 there's still a certain amount of flexibility. Not all the information--

essentially the significant portions of the application, but not all the application. As in level 1, all the application is incorporated into the certification.

COMMISSIONER CURTISS: Do the Qs and As go in?

MR. VIRGILIO: They may. It depends. It would depend on whether the Qs and As got you down to a level where you were looking at key features and physical attributes associated with key features and you were trying to incorporate that information in order to ensure standardization.

CHAIRMAN CARR: But when I read that statement, all that meant to me was that certification might be like your college degree. It doesn't show everything you learned in the course, but you had to complete the course before you got your certified degree. And all that meant to me was that we weren't going to turn around and issue everything in a certification that the application had in it. It said that an application is hereby certified. It could be a small piece of paper. That's the way I read that before I got all the legal opinion.

COMMISSIONER CURTISS: I guess that's consistent with my view. But if you take a two-tiered

approach, then it's very important what you have in the certification and in tier 1. So, I gather they're making that point and again here I'm just, I guess, making the argument here not because I happen to support it but because they're making the point that the detail on the certification would be less than the application and then it's a question of how much between tier 1 and tier 2.

What you're saying here is that there are going to be some things in the application, depending upon the specific system that you're talking about, that would not find their way into the certification under level 2.

MR. VIRGILIO: Under level 2.

COMMISSIONER CURTISS: Then I think that's consistent with the way I read Part 52.

MR. VIRGILIO: That's correct.

COMMISSIONER CURTISS: Okay.

MR. VIRGILIO: (Slide) If we go to the next slide, slide 11, we talk about level 3 and what would be included in the certification. I've enumerated a number of features, the design criteria, bases, system functional descriptions, right down to the P&IDs and the layout drawings.

To be fair, this level provides a marked

degree of standardization. You've standardized the functional and performance characteristics far in excess of what we have out there today. It allows a certain amount of flexibility for change pursuant to 50.59.

(Slide) Go on to the next slide, slide 12.

Our paper highlights this as a second policy question, flexibility. This could be applied to any of the levels. It's not necessary that it applies only to level 3.

As industry told you on Monday, this approach involves formatting the application into two distinct parts and allowing one part to change pursuant to 50.59 type tests. The resolution of all safety issues, the grouping of the issues in two parts and the 50.59 type process would all be subject to the rulemaking process certifying the design.

The desired effect is to allow flexibility to change the design as necessary to deal with the construction deficiencies, unavailability of equipment over the life of the certification and to be able to take advantage of improvements in technologies or new technologies.

COMMISSIONER REMICK: I'd like to ask a

question on flexibility. On your table 1, you identify the F as flexible change without 50.12. I assume, however, with 50.59.

MR. VIRGILIO: Or whatever test you so choose to govern those changes.

COMMISSIONER REMICK: Okay.

MR. VIRGILIO: That's correct.

COMMISSIONER REMICK: Okay. Thank you.

MR. VIRGILIO: We --

COMMISSIONER CURTISS: You touched on the three points the industry advanced for why they need this kind of flexibility, interferences, obsolescence and the need to take advantage of the advancements in the state-of-the-art in technology, I guess.

Focusing on the interferences question for a minute, get out in the plant and construct it and your cable tray runs into your pipe and you're off by three inches. To what extent can that issue be addressed through the use of tolerances and how much of the problem that they've identified and as you understand it could be addressed by the kind of latitude and flexibility that tolerances contained in the license -- in the vendor design or the COL would provide?

MR. VIRGILIO: Today, with the use of

computer-assisted drawing techniques, I believe that you do get some advantage, but I believe that some interferences are inevitable in the construction process. I'm not sure even with increasing the tolerances that you're going to be able to completely eliminate these types of construction interferences.

COMMISSIONER CURTISS: Okay. Then on the question that I guess we raised last Monday of obsolescence and the flexibility to take advantage of new developments, new kinds of components, as the Chairman pointed out, if you don't certify nameplate data in the certification, how much of a concern remains under this heading? How much of a need remains to still have that 50.59 flexibility, in your judgment?

MR. VIRGILIO: If I think about how much we've advanced in the instrumentation and control area alone in the last 15 years, there's a lot more than nameplate data involved. We've gone from relays that constitute our voting logic for initiating protective actions to software that does that today. So, there's a significant advance over the course of the last 15 years in that area.

CHAIRMAN CARR: But you didn't -- in the current thing, you didn't certify a relay. You said

there was some switch there.

MR. VIRGILIO: That's correct. But if you were to look at level 1, we are really talking about certifying the relays and in some cases maybe the physical attributes associated --

COMMISSIONER CURTISS: Since it's illegal, focus on the differences between 2 and 3. I think we all recognize that --

CHAIRMAN CARR: No, that's -- you're going to do it at the combined operating license point anyway.

MR. VIRGILIO: No, sir. That information would be available, but it's not necessarily going to be incorporated into the application or certified at that point in time.

CHAIRMAN CARR: But it's going to be available at that point in time is what I'm saying. He's not going to change it from that point until he builds the plant without getting our permission. They don't walk in there and change their instrumentation.

DOCTOR MURLEY: Excuse me, but that information that goes beyond what's in the certification would -- he could change through a 50.59 process. That is anything, no matter what level we're talking here, 1, 2, 3 or so forth, there is a certain

amount of design information that needs to be done before you to the COL. Any information in that part of the design can be changed, as I understand it, through a 50.59 type of process.

COMMISSIONER CURTISS: You're talking about the vendor certification?

CHAIRMAN CARR: I'm talking about the difference between the certification and what goes on between then and the combined operating license. The guy can do anything he wants to as long as he doesn't change the certified portion.

COMMISSIONER CURTISS: That's correct.

CHAIRMAN CARR: Which is some degree of standardization. We standardize whatever we certified.

COMMISSIONER CURTISS: That's right. That's why the question of what you certify, or if you take a two-tier approach --

CHAIRMAN CARR: Standardized power level, kilowatts, flows, pump numbers.

COMMISSIONER ROGERS: Well, just on this, this question of tolerances, is a tolerance flexibility a way of putting something in tier 1 and not having it available for 50.59 change by just using a tolerance? Does that make sense or not?

MR. TAYLOR: I personally don't think you could do that. There are tolerances in the analyses that are included, but if you -- those are usually not large tolerances. If you are doing pipe stress analysis, when something is -- whatever -- there are lots of examples where they go beyond what are so-called normal tolerances and then you have to rerun the stress analysis.

COMMISSIONER ROGERS: Well, I wasn't thinking so much of interferences and things of that sort, but questions of obsolescence.

CHAIRMAN CARR: Let me go back --

COMMISSIONER ROGERS: You set a tolerance on a component, then it would allow perhaps for a new design of some sort that was better but a little bit different without necessarily having to --

CHAIRMAN CARR: Well, I've seen those situations where the guy who builds the computer says, "I want an input of 120 volts and so many amps plus or minus 0.1." The guy that builds the generator says, "Okay, I'll give you 119.6 plus or minus 3," and you end up with a tenth of a volt overlap that makes it work or not work. That's just --

COMMISSIONER ROGERS: Yes.

CHAIRMAN CARR: Everything meets the specs

as long as it doesn't drift a little.

DOCTOR MURLEY: Okay. We haven't talked about construction methods here and we're not really prepared to. There is some discussion by the industry that they would go to modularized factory construction for a large part of it, in which case you could hold tolerances better than field fabrication --

CHAIRMAN CARR: And assemble submarine sections by lasers and they seem to fit great.

DOCTOR MURLEY: Yes. And then you can do that. But I don't think, at least in the next decade or so, that any nuclear plant would be built that way. So, you'd have to still rely on a great deal of field fabrication and field construction.

CHAIRMAN CARR: What you're convincing me of is what the utilities convinced me of Monday and that is that number 1 plant could have a tier 1, tier 2 or some degree of flexibility, but why would you need that in a second plant? If you've done it once, you now know what the designs are, what the interferences were and you don't have them anymore. That's standardization as far as I'm concerned.

MR. TAYLOR: Only obsolescence in that case really because it can extend over a 15 --

DOCTOR MURLEY: They use the same

drawings?

CHAIRMAN CARR: Hopefully, the construction period won't be so long that things will get obsolete during the building period.

COMMISSIONER ROGERS: Yes, but the design certification goes on for a long time.

DOCTOR MURLEY: The design certification can go for 30 years, as I understand it.

CHAIRMAN CARR: But I see no reason they can't apply for a change in the certification. If a guy wants to change that all he has to do is come in and request the change.

DOCTOR MURLEY: There's a process, yes.

CHAIRMAN CARR: Let's go ahead.

COMMISSIONER CURTISS: One other question there on that, Ken.

If I understand the industry's proposal, they are talking about a two-tiered process both for the vendor certification as well as the COL, parallel to the COL, where under the tier 2 process they could 50.59 change this. We've talked about the three reasons why they'd like to have that and focused really on what happens when you get out and construct the plant, a utility goes out and finds out that they're interferences or operates it over time and

decides that the equipment is obsolete or needs to be updated to take advantage of the state-of-the-art.

What -- I guess I'm still struggling to understand the need for a 50.59 provision for tier 2 in the vendor certification where they seem to be implying that the vendor, for some reason, would need to change the certification. Obviously there aren't going to be any interferences in just the paper document of a certification. What sort of need do you see, if any, for 50.59 flexibility in the vendor certification and recognizing that the Part 52 already provides the flexibility to come in and get an amendment or an exemption?

CHAIRMAN CARR: I didn't hear him make that particular -- if I did, I missed it.

COMMISSIONER CURTISS: Maybe I misunderstood what they said. Aren't they looking for 50.59 flexibility in the second tier? There's a two-tier process --

DOCTOR MURLEY: Yes.

MR. TAYLOR: Yes.

COMMISSIONER CURTISS: -- reflected in the certified design.

CHAIRMAN CARR: That's an uncertified portion.

COMMISSIONER CURTISS: I understand that and my question -- they're proposing that second tier because of the perceived need for flexibility in the information that a vendor has in a second tier of a certification.

COMMISSIONER REMICK: But, Jim, wouldn't certification, including tier 2, be a part of the COL of the combined license and therefore you would need that 50.59 for tier 2 if it's --

COMMISSIONER CURTISS: A COL holder would.

COMMISSIONER REMICK: A COL, I assume, would just take a certified design and --

CHAIRMAN CARR: I'm not sure we're not confusing configuration control after the plant is built and licensed. That's different.

MR. TRAVERS: What I have heard is that the vendors don't anticipate exercising that kind of flexibility between the issuance of the design certification and the COL stage, but rather it comes into play at the COL period. In fact, there's a disincentive -- in fact, I don't even know if 50.59 is applicable to vendors that hold design certification. Perhaps the General Counsel --

MR. PARLER: Well, I think that's already been raised in this meeting and the answer was no, but

the vendors would be stuck with what the certified design rule provides unless they wanted to seek to have an exemption made or an amendment made to it.

COMMISSIONER CURTISS: Okay. Go ahead.

MR. VIRGILIO: There were three attributes that need to be recognized regarding this approach that we pointed out in the paper. One is the increased flexibility will lead to less engineering being completed at the time of certification. Two, changes made under the 50.59 type process could be subject to challenge in hearings that could delay operation. Third, the process will allow for erosion of standardization, as we've discussed.

(Slide) Moving on to the next slide, we talk about the certification at level 4 and you could certify the entire application and you would still have a limited number of issues resolved and it would leave much to be certified at the COL stage.

In summary, our paper has asked the Commission to provide us guidance on level of detail in what's included in the application and what's included in the certification, and we've asked the Commission to provide us guidance on that two-tiered approach.

That completes my portion of the

presentation. I'd like to turn it back over to Tom.

DOCTOR MURLEY: There were some questions that came up Monday with regard to staff reviews and I thought I would take a moment and discuss what our situation is, what our status is and how we would plan on going about those reviews.

We, as you know, have been reviewing the evolutionary plants for over three years now and we view the phasing of these reviews to be such that the evolutionary plants would lead the way. First of all, they look familiar to the staff. We have reviewed some recently. We can use the standard review plan generally. The major areas where we do see differences are in the severe accident area and here we've just recently brought up the issues that we saw with the Commission and those have been resolved.

So, we think that the evolutionary plants then will lead the way and the reviews of those will be used to flush up technical policy issues for the Commission like we did on the severe accident issues. And as we move further into the certification process, we think they will flush up the procedural policy issues as well that may arise and this seems to be one of them, for example, the level of detail.

So, I do not see any major hurdles or

conceptual problems in the staff review of the evolutionary plants with one possible exception and that is we've not looked carefully yet at the issues of automation and control room design and certain I&C issues. We may be back to the Commission with policy issues in those areas, what degree of automation to agree to and so forth.

Coming along next then would be the passive plants and I don't know but they'll probably be at least a year or so behind in terms of the evolutionary plants. We will be doing some reviews of the passive plants, particularly with EPRI, but I view these as focusing on conceptual issues and broad safety policy issues.

There appears to be on the surface, for example, several areas where the designs don't strictly meet our current regulations and so we'd have to flush those out and discuss those with EPRI and with the vendors. The standard review plan does not apply strictly and we'd have to --

CHAIRMAN CARR: Let me ask you about that.

DOCTOR MURLEY: Yes.

CHAIRMAN CARR: I guess maybe I don't understand if we're only -- if we're going to certify a design, a standard review plan seems to me to be

pertinent to where you've got 100 designs out there, but we're only going to have four or five perhaps. Each one of these is going to be its own standard review.

DOCTOR MURLEY: That's right.

CHAIRMAN CARR: So, I don't see that --

DOCTOR MURLEY: Well, because the standard --

CHAIRMAN CARR: I guess what I'm saying is why go through trying to change the standard review plan rather than just reviewing the design.

DOCTOR MURLEY: Because the standard review plan is the collection of 20 years of wisdom --

CHAIRMAN CARR: Oh, but if we lag --

DOCTOR MURLEY: -- on the part of the staff on what to look for. How does one review certain aspects of electrical systems, for example? So, it's a guide and you're quite right, once we have a plant certified, then the standard review plan would serve no purpose for that plant.

CHAIRMAN CARR: Yes. I guess my question is you're going to have to go through the same process to review the standard review plan that you're going to have to go through to review the design. You're

trying to match the review plan to the design to see what you ought to be looking at. It seems to me simpler just to look at the design. Am I being confused?

DOCTOR MURLEY: I think I get your point, but let me say that --

CHAIRMAN CARR: Because we're only going to do it once for that design.

DOCTOR MURLEY: Let me say it another way. A plant comes in that doesn't meet our regulations, let's say. It's new, it may meet the intent, it may even be better, but it doesn't meet what the staff has seen before. I don't feel I can just throw that design to the staff and say, "Review it." What we do is tear the applications apart and the electrical branch gets a certain part, the thermal hydraulics branch and systems branch get certain parts. But we, the management of the staff, have to stand above and do an assessment of the overall safety of the plant. That has to come first, I think, on that, particularly on the passive plants. In doing that, we're going to have to give the staff guidance that it's okay that they don't meet the regulations in this area because of some other compensating features.

So, it's that kind of broad view that

we're going to have to take and we just simply can't turn a new design over to the staff because they wouldn't know what to do. And I think that is probably -- or at least going to take a year, in my judgment, from what I've seen of some of the aspects of the passive designs, discussing these issues. We can do it. I don't feel that it's impossible, but there are pretty broad issues at stake here.

CHAIRMAN CARR: I guess I'm still confused. If you're going to look at a gas-cooled reactor, we'll say, and your standard review plan probably doesn't fit that today, the same amount of work is involved in trying to decide what the standard review plan ought to be, it looks to me like, as to decide what the reactor ought to be.

DOCTOR MURLEY: Yes, you're quite right. The further away you get from --

CHAIRMAN CARR: And as long as you're only going to certify one design at a time, it's not like you're going to have 35 BWR designs to certify.

DOCTOR MURLEY: Now, your point is, I think, the further you get away from the type of light water reactors that we have licensed, then the less value is the standard review plan.

MR. TAYLOR: So, that's the embodiment.

CHAIRMAN CARR: That's my --

COMMISSIONER ROGERS: Well, presumably, the standard review plan embodies some sense of what's important.

DOCTOR MURLEY: Yes, it does.

COMMISSIONER ROGERS: What the key issues are and it's very valuable to bring those up to the surface so that you're reminded of them, even if you have to start anew. So, you don't want to be bound and hog tied by the standard review plan, but on the other hand as a guidance as to what the important things are to be considered, certainly would seem to be a useful backdrop to the new process.

DOCTOR MURLEY: And the way you do seismic analyses, the way you do structural analyses would be the same for any plant.

COMMISSIONER ROGERS: Yes, they're not going to change that.

DOCTOR MURLEY: The electrical systems and how you ensure separation and diversity --

CHAIRMAN CARR: I guess my concern was hung up with having to work on the standard review plan for a year before you attack the design.

MR. TAYLOR: I think he's emphasizing the difference of the passive features and how the passive

plant represents a step change from the existing --

COMMISSIONER ROGERS: Where the exceptions are that have to be dealt with individually.

MR. TAYLOR: -- and there are going to be differences. We already know there are differences.

CHAIRMAN CARR: Okay.

MR. TAYLOR: The point is getting those areas identified and where they represent major design issues, to get them to the staff and to the Commission is going to be part of our process and will be really changed --

CHAIRMAN CARR: Before, when you had seven applications on your plate, I can see why you needed some kind of standard review, but you're only going to have one application probably at a time.

COMMISSIONER CURTISS: And to some extent those issues are going to be taken up, I gather, in the EPRI requirements document as well. To the extent that they don't involve nitty-gritty detailed licensing review, that may further minimize the need for an SRP.

CHAIRMAN CARR: Okay.

DOCTOR MURLEY: I was kind of responding to Commissioner Remick's point on Monday where he said that we will have four designs. I don't think we'll

have them all at the same time and at the same stage. That was my point. I think the evolutionary designs are going to move ahead and they're more traditional. The passive plants, even though we're working on them at the same time, we're not at the same level of detail and the staff is not looking at the kind of detail in the passive plants that they will be at the same time for the evolutionary plants. I think it will be at least a year or two later.

COMMISSIONER REMICK: Tom, I have to respond to that. I agree with you that you won't have four at the same time, but you have two now and you have presumably two in 1992. And the one way to identify these differences and the issues that need to be brought up for decision is to be in there reviewing and know what those plants are, staff looking at them and determining what are the problems if there are any. The only way to do that is get the staff in. We can't do it around the table.

DOCTOR MURLEY: Now, let me turn to the question of staffing levels and the skills because we have been concerned about that and we're taking action now to -- I've, some months ago, asked my senior staff to prepare a plan for how we're going to increase the staff skills that we need because we recognize NRR is

thin in several disciplines. Although we have been reviewing plants all along, we certainly do not have the workload that we had ten and 15 years ago.

Our focus since the organizational change in 1987, the focus has been on assuring the safety of operating reactors. So that's what my focus and --

CHAIRMAN CARR: We don't want to lose that focus.

DOCTOR MURLEY: I know it and what I tell my staff is now we've got to move to a duel focus where, as I understand the Commission, the first priority is still to make sure the operating plants are safe. At the same time, we've got to have the capability to do these reviews. I'll have this plan ready in a month or so and I'll need to talk with Jim Taylor to go over that with him.

The Agency as a whole has a great deal of expertise for tech reviews. Not all of it, of course, is in NRR. Also, we find that we're still able to attract talented new people. My staff just told me today that we've been able to attract, for example, an assistant professor in thermal hydraulics area. We've hired two new instrumentation and control people who are talented. They've got to, of course, now learn the regulatory system and learn the standard review

plan and that sort of thing, but the people are out there and we -- at least I feel confident that we can get them. We have to have a plan and we have to organize our recruiting and that sort of thing, but we can do it.

One other point I would make on the passive --

CHAIRMAN CARR: Excuse me.

DOCTOR MURLEY: Yes.

CHAIRMAN CARR: Are you thinking about project-izing these reviews?

DOCTOR MURLEY: Yes. Oh, I see what you -- no, I haven't decided that yet. In other words, would we take off all the people that are needed to --

CHAIRMAN CARR: A la the TVA effort, or the Comanche Peak effort or the special projects?

DOCTOR MURLEY: We haven't decided that, Mr. Chairman. It's certainly a consideration.

CHAIRMAN CARR: It's one thing to focus on. I don't know if you've got that much technical talent.

DOCTOR MURLEY: That's right. If we've got three and four and five and six to do, I don't think I can do it. If there's maybe only one or one

at a time, that's a possibility. It would certainly be more efficient. I've had some experience along those lines.

We do now have more management time and by that I mean the senior managers of NRR because we've got Seabrook and Shoreham and Comanche Peak behind us and Peach Bottom and Pilgrim and so forth.

CHAIRMAN CARR: If I make a note of that, you got more time.

DOCTOR MURLEY: We -- I find that we have more time at least to focus on these conceptual issues that are being presented in the -- by the passive plant design.

I think there's one other final point that we've touched on a bit. That is the greater the level of detail, obviously the more information that comes into NRC and the more need we have for management guidance to the staff on scope and depth of review. That's why even though we don't necessarily need to redo the standard review plan, we do have to have something to control the staff from getting into just great gory detail because their mode of operation is to review something that's put in front of them.

If there's material that is brought in that we would not normally ask for for our safety

judgment, but is required by the Commission for standardization purposes, then the staff would normally want to get into it and ask a lot of questions. We, the management, would have to give them guidance on what is the proper scope and depth. That's a point to consider in your deliberations, I think.

COMMISSIONER ROGERS: Isn't that --

MR. TAYLOR: Excuse me. If we -- I think I'd like to add to that. If we certify a large body of design, Tom's point is well taken. Depending upon the area and its effect on safety and its significance, we're going to have to devise plans of an audit-type review in specific design details whereas in other areas we'll be doing a much broader review. That type of management direction of the staff is going to be important depending upon the level of information that is to be certified. It's going to take a lot of planning to organize the staff and limit the reviews where it is appropriate to limit them, but to ensure we very carefully cover the safety issues that are our mission. That's very important.

COMMISSIONER REMICK: Wasn't that one of the purposes in the standard review plan, to lay out --

MR. TAYLOR: But some of these would-- and the balance of plant area and other things that may be submitted will represent additional areas of review beyond what we do today.

COMMISSIONER REMICK: I think that supports Tom's interest in having the standard review plan updated because it provides guidance to the staff.

COMMISSIONER ROGERS: Well, just on this, it is a different ball game because, as you pointed out, in the past, the reviews have ultimately had available the whole plant almost, as-built. And it's very important to know where to make that cut so that you don't go below that. Otherwise, you'll never get there in terms of detail. Just how to do that, it seems to me, is very important at the outset that you try to think that thing through very carefully and really essentially develop some kind of training exercises for experienced reviewers who are used to the old system that may find difficulty in just knowing where to -- how far to go.

DOCTOR MURLEY: That's why, Commissioner, I think it's important for the process to take through the first certification, one that's close to what we've done before, namely an evolutionary type of

plant.

COMMISSIONER ROGERS: Yes.

DOCTOR MURLEY: Personally, I think there will be less pitfalls, that we'll be able to handle it better and once we've done that, then we can take the more innovative designs on through certification.

CHAIRMAN CARR: Do you foresee level 1 as encompassing lighting?

MR. VIRGILIO: Level 1? Yes, I would.

CHAIRMAN CARR: It's tough to tell where you need the lights until you get the plant built. Usually they're not where the gauge boards are or there's a pipe in between that or it's too high or you can't reach it. But you think that would be in there, huh?

MR. VIRGILIO: Yes. Level 3 today -- or let's go back to the way we do our traditional review. You look at the branch technical position and our appendix on fire protection. We review lighting today in certain respects, even --

CHAIRMAN CARR: That's after the plant is built?

MR. VIRGILIO: Actually, we have criteria that requires it to be built to certain specifications.

CHAIRMAN CARR: Incandescent or florescent?

MR. VIRGILIO: Not to that level of detail, no, sir.

COMMISSIONER CURTISS: Let me jump back to the resources question for a minute and see if I can get some of the -- recognizing that you're going to come up in a month or so with a more detailed plan. Let me see if I can focus on some of the nuts and bolts of where we are today in view of the process that's been established and the issues that are currently pending.

Tell me what the choke point is or the critical path is today on the EPRI requirements document and the two evolutionary designs. Whose court is the ball in? Are we resource constrained? Give me a feel for, as I say, what the choke point is.

DOCTOR MURLEY: Let me turn to Bill Travers.

MR. TRAVERS: We are continuing actively to review not only the EPRI requirements evolutionary document, but also the ABWR and the Combustion 80+ LRB submittal and wrapping up our review on the Westinghouse SP/90 PDA.

But let me start with the question you've

asked about EPRI evolutionary. What we're doing today on EPRI evolutionary is tracking reasonably well with the process that we laid out for you in SECY-90-065. We currently have been meeting with EPRI. We've had some five meetings or so in the last month and a half to go over the issues that remain to be resolved with them. I should note that the Commission decisions on our SECY-90-016 have facilitated our heading towards closure on a number of these issues.

Right now, our goal is to issue nearly all of the draft SER chapters by about October of this year. Of course that would follow submission to the Commission of each of those chapters that we're working on currently. As you know, we've issued draft SERs on Chapters 1 through 5 to date. So this would encompass the remaining Chapter 6 through 13.

COMMISSIONER CURTISS: Do you still plan on a roll-up document?

MR. TRAVERS: EPRI plans on a roll-up document and we do as well. EPRI's roll-up document is due in next month, I believe, and our roll-up document would be in the form of our final safety evaluation report.

COMMISSIONER CURTISS: Do you have a date for that?

MR. TRAVERS: And that's tracking, as I mentioned, with the dates and I'll estimate case 1 in SECY-90-065. So, it's tracking on about a schedule for May or thereabouts in 1991.

COMMISSIONER CURTISS: All right. Is the EPRI review resource constrained? You talked about the thinness in some of the NRR areas and the question's been raised about the potential shortcomings in resources. Are we constrained in any way on resources?

DOCTOR MURLEY: I don't know. What's the staff finding, Bill?

MR. TRAVERS: Well, I think given the thinness that we do have in several areas, you could always improve the schedule somewhat. But I think what we've indicated and I think what we still feel is that it's not entirely resources limited. You could improve somewhat these schedules, I feel, if you had people you could devote today with the necessary expertise and skill. But I think that would be a difficult thing to do at this point.

COMMISSIONER CURTISS: Okay. Could you speak to the two vendor reviews?

MR. TRAVERS: Yes. With regard to the advanced boiling water reactor, we have a current

target of trying to issue all or essentially all of the draft SER chapters -- excuse me, all of those chapters early in calendar year '91, within that first month or two or three. That, again, would track with the schedule for case 1 listed in SECY-90-065.

COMMISSIONER CURTISS: Do you have a projected FDA date?

MR. TRAVERS: The projected FDA date is case 1 or somewhere between case 1 and case 2 for 90-065 and currently that's listed as July '91 to 12/91. So, summer to end of calendar year '91 is the current estimated FDA date.

COMMISSIONER CURTISS: With design certification taking roughly a year after that?

MR. TRAVERS: We've estimated 18 months for the purpose of scheduling.

COMMISSIONER CURTISS: I guess that's increased since I looked at it last time.

MR. TRAVERS: It was 15 to 18 months.

COMMISSIONER CURTISS: 15 to 18.

MR. TRAVERS: I think we've consistently held with that kind of projection.

COMMISSIONER CURTISS: So we'd be in a position to certify the first design, assuming that's the first one out of the blocks, 18 months in mid '93.

MR. TRAVERS: That would put you at early to mid '93, correct.

CHAIRMAN CARR: Depending on the level of detail?

MR. TRAVERS: Yes, that's a caveat, I should note. Currently, of course, we're not reviewing to certainly a level 1. I could say and I --

CHAIRMAN CARR: Well, level 1, I presume, is not ready for review.

MR. TRAVERS: No, it's not. If you asked the question about ABWR and where do they stand relative to the options presented --

COMMISSIONER CURTISS: I was going to ask that.

COMMISSIONER REMICK: So was I.

MR. TRAVERS: I think it's fair to say that in some areas the ABWR review is at or close to level 2. I think you've heard presentations that speak specifically to reactor building structure and so forth as areas in which we're getting a very high level of detail. Rebar configuration and so forth, spacing, levels of information that we traditionally don't require and don't request in the conduct of our SRP reviews.

COMMISSIONER CURTISS: Do you have level 2 detail for control systems?

MR. TRAVERS: No.

CHAIRMAN CARR: I would wager you've got level 2 detail for what they're already building somewhere.

MR. TRAVERS: And I think in ABWR space, we have the potential for getting a very high level of detail across the board because of what is being done or planned in Japan. But we don't have in a number of areas level 2 information. In fact, we're working in some areas to get to level 3.

COMMISSIONER CURTISS: And CE's System 80+?

MR. TRAVERS: We are about to send up our comments to the Commission on the LRB submittal for Combustion. I expect that will be up within the next several weeks. Several of the issues that we've identified in that paper correspond to the kinds of issues you've already been considering in the 016. So, I think you'll find a great deal of parallel in that.

DOCTOR MURLEY: Now, Commissioner, we're giving you our best judgments right now, of course. The two things I think could change is one you

mentioned, the level of detail could change because we have not been reviewing certainly level 1 kind of detail. Also, I'm a little concerned, as I mentioned, about the use of automation and how much would be contemplated in these plants, particularly in --

CHAIRMAN CARR: Especially in control systems and instrument systems.

DOCTOR MURLEY: -- the control room and control systems. We have not in the past done a lot of detailed review of that and so it would be somewhat new to the staff and that could take longer than we thought.

MR. TRAVERS: And we are also looking to identify, as early as possible, any additional policy issues along the lines of what Tom's mentioned. One of them, for example, could be an issue related to what positive control is necessary for the ABWR vent. That may be something --

COMMISSIONER CURTISS: Do the --

CHAIRMAN CARR: Let me jump into that for just a second.

COMMISSIONER CURTISS: Go ahead.

CHAIRMAN CARR: The review that you do, I have a little bit of trouble with the level of standardization effecting your review. In the first

place, you're going to look at the safety primarily. Standardization is going to be decided by how much detail we require, but that still doesn't affect what you have to look at from a safety standpoint. Standardization comes as a bonus requiring it, if we put it in there. That doesn't mean you have to do a deeper level of detail in your review, does it, if you're satisfied that safety is all right? Am I missing something?

DOCTOR MURLEY: I guess I'm not sure I --

MR. TAYLOR: I would think that if we're going to certify by rule, that the submission in that certification process, we're at least going to have to audit/review a lot of material that we wouldn't necessarily have decided it was material with specific safety decision. That's the way I view it personally. I would think you would expect that.

MR. TRAVERS: I think that's the control of process issue that Tom was referring to earlier. Certainly as a minimum, I feel we would need to --

CHAIRMAN CARR: But I know if the guy submits the design and you review it for safety and say, "Yes, that design is a safe design," then if we certify it, why would you have to look at it any harder than you do now from a safety standpoint?

MR. TRAVERS: For one reason, to assure ourselves that the level of detail encompassed in the Commission's policy was met, I think. And beyond that, other staff questions may arise from --

CHAIRMAN CARR: And you don't normally get the balance of plant safety --

MR. TAYLOR: That's right.

CHAIRMAN CARR: I understand that piece of the action.

MR. TAYLOR: That's an expansion.

CHAIRMAN CARR: Okay.

COMMISSIONER CURTISS: I had two other questions on resources. For the GE and CE reviews, are they resource constrained today? Is resources the critical path?

MR. TRAVERS: Again, I don't think resources are the critical path.

COMMISSIONER CURTISS: Okay. On the-- you indicated that you're going to submit the CE licensing review basis to the Commission in the next few weeks. At one of the recent meetings, the Chairman raised the question about whether -- about what the role of the LRB should be in view of what the Commission has said on the EPRI requirements document. Are we going to get the staff's views on the

continuing need for an LRB in a time frame that would permit us to reach that policy decision in conjunction with what you're recommending on CE?

MR. TRAVERS: I have to look at the date that we owe you an answer on the question relative to passive. Of course we're talking about the evolutionary combustion design. I should clarify that what we're providing the Commission or what we expect to be providing the Commission in the relative near term are our initial comments on the submittal on LRB. There are subsequent steps in the process which would ultimately lead to issuance of an LRB and my best projection of that right now is in the spring to summer time frame of 1991. That's in accordance with the process.

COMMISSIONER CURTISS: I guess as a general observation, one of the things I'd like to recommend for us to consider, we now have the staff on the hook for six month briefings on this program. It would be helpful in my mind, perhaps in conjunction with those briefings, if we had a submittal from the staff around that time that would go through a discussion for the EPRI requirements document and the individual vendor design reviews of what's been accomplished in the past six months, what the critical

path is, what you see as the major policy issues, and your continuing update of the schedule as you get into it so that we -- it's been very helpful to get a sense of that here, but a more formal presentation of that is something that I toss out for us to think about.

CHAIRMAN CARR: But I would encourage you not to wait six months if you've got a problem we can help with.

COMMISSIONER CURTISS: Exactly, sir.

COMMISSIONER REMICK: Did you give us the expected date for the system 80+ for the FDA certification?

MR. TRAVERS: I didn't, no. I gave you an idea of the projected time frame for issuance of LRB, which is spring, summer of '91. SECY-90-065 dates for CE 80+ lists August of '93, case 1, and May of 1994, but we need to -- and the Commission has asked us and I know the Executive Director for Operations has asked us to reassess these dates and we'll be doing that shortly.

CHAIRMAN CARR: Those dates are pre-level of certification dates?

MR. TRAVERS: Right.

COMMISSIONER REMICK: I hope you'll address what the vendor has requested as an

anticipated schedule from their perspective.

MR. TRAVERS: Yes.

MR. TAYLOR: That concludes the presentation, sir. If there are questions --

CHAIRMAN CARR: I've lost track of where we were.

Commissioner Rogers, would you like to kick-off?

COMMISSIONER ROGERS: All right.

Do you have any feeling about the degree of standardization that, say, the French have achieved in their program, how that might compare with what we are thinking of here in possibilities?

DOCTOR MURLEY: Yes, as a matter of fact--

COMMISSIONER ROGERS: Is there anything comparable that we could grab onto?

DOCTOR MURLEY: I guess I didn't bring it with me, but they have in fact six LWR designs. There are three versions of the 900 megawatt plant, two versions of the 1,300 megawatt plant, and they have a 1,400 megawatt plant. So in terms of the kinds of numbers of types of designs that they would have to keep control of, it would be comparable to say a couple of evolutionary plants and a couple of passive plants. So it's not -- they don't have rigid

standardization even in France. But within a class, my sense of things is they have, primarily as a commercial proposition, bought things in -- ordered from Framatom and bought in bulk quantities.

CHAIRMAN CARR: Buy six at a time.

DOCTOR MURLEY: Yes. And it makes a lot of sense. You can have economies of quantity and also you can keep a shop operating routinely. So I think they did it and it's been quite good and quite useful from that point of view.

COMMISSIONER ROGERS: Just within our own realm of experience, can we -- do you have any feeling about the differences in the level of regulatory attention that's been required say for the two SNUPPS plants versus other non-standardized comparable plants? Have you seen any impact there?

DOCTOR MURLEY: Difference in the level of--

COMMISSIONER ROGERS: Regulatory oversight. Do we need to --

DOCTOR MURLEY: During the review?

COMMISSIONER ROGERS: After they've been open to operate.

DOCTOR MURLEY: Oh, after they're open. I really don't think we'd see much difference, no. I

just don't think there's much difference. First of all, they're in different regions so that the regional attention is greater.

COMMISSIONER ROGERS: Well, how about during construction?

MR. TAYLOR: Wolf Creek followed the Callaway experiences very carefully. They still had some construction problems, principally implementation issues, some welding issues and so forth that came up. But there was during that period a lot of back and forth between those two utilities. My understanding is that continues today, so there is that benefit of experience one to the other.

DOCTOR MURLEY: But if I follow the line of your question, there is no doubt in my mind that standardization can lead to regulatory and safety benefits by being able to take the experience of a large number of plants and knowing that it applies. And so there's clearly going to be a --

COMMISSIONER ROGERS: But no way of quantifying that.

DOCTOR MURLEY: Yes, there's no way to quantify it.

COMMISSIONER REMICK: If I may, Ken, just ask -- I certainly agree with what you're saying. No

question about it. But there is a down side to standardization. And that is right now the Soviets are replacing the steam generators in all their VVER 1000s, all those plants' steam generators, because it's common cause. And so you increase the possibility of common cause problems with standard plants. That doesn't say I'm against standard plants. I'm for them. There is a down side.

DOCTOR MURLEY: Yes.

COMMISSIONER ROGERS: Just coming back-- I think you're really answered it, but I've been looking at your Table 1 and the list of items, line item 8, physical attributes and configuration of each component. You didn't list that under level 2, and it's my understanding of your definition of level 2 that it was to encompass attributes. Is that the key attribute question? Is that the separator?

MR. VIRGILIO: Yes, that would be our answer.

COMMISSIONER ROGERS: Physical attributes in level 7, but -- the key ones are in 7, but 8 --

MR. VIRGILIO: Under the line, yes.

COMMISSIONER ROGERS: -- 8 has all the attributes, is that --

MR. VIRGILIO: Yes.

COMMISSIONER ROGERS: That's the distinction between them, okay.

Just for the General Counsel, do you agree with the industry opinion expressed the other day that the company proprietary information that's submitted in the design be certified for rulemaking could be withheld from public disclosure?

MR. PARLER: I agree with what he -- the testimony or the remarks said that we did in the rule in response to the comment. That is, we moved in the direction of giving guidance in the area which would be, at least for Part 52 purposes, compatible with the procedures and the policies that were applied for licensing.

However, the implication that the issues-- the inference, at least, that I drew that the matter had been resolved so that you could reach the result that you just stated in your question to me, I do not agree with that. That is not a new issue. For years we've had the -- it doesn't come up frequently. It hasn't come up frequently in my judgement.

But the balance that has to be struck on the one hand for protecting -- proper protection of proprietary data in a licensing decision -- with the necessity to make public the underlying rationale for

the safety findings and for other licensing decisions. And if you cannot strike that balance, you would have a problem. We cannot license something without an adequate publicly-stated rationale for the safety findings.

COMMISSIONER ROGERS: So there still might be some questions?

MR. PARLER: Which would have to be dealt with on a case by case basis.

COMMISSIONER ROGERS: Okay. Because that seemed to be somewhat handled the other day as if it was really very clearly settled.

MR. PARLER: That implication I do not agree with.

COMMISSIONER ROGERS: Okay. In the SECY paper on page 11 -- and I think you quoted it, Marty, to some extent -- it states that solidifying only the top level design criteria and performance standards in tier 1 will among other things reduce the safety and cost benefits of standardization. I wonder if you could just say a little bit on what you are really thinking about with respect to safety reduction foreseen from reduced standardization.

MR. VIRGILIO: With regard to level 3, let me back up a little bit. What's flexible in the

design, you're not going to see the finalization of all the details for that portion of the design. If you allow some flexibility, I believe in certain areas the tendency is going to be to do less engineering work up front than there will be if you certify the design.

You have to -- when you certify the design, the NSSS vendor or whoever is marketing the product has to know that they can deliver it for a cost, that they can actually produce this information. If you allow some flexibility in it, well, they're going to assess the risk of being able to supply this information or complete this design. And on that basis, they're going to do more engineering work or less engineering work. Now what's not certified, then, is then less solidified.

COMMISSIONER ROGERS: But isn't the safety protection offered by the entire process that has to be followed before we finally issue a construction and operating license?

MR. VIRGILIO: We will have to make our minimum safety findings in all the levels, except for level 4. You know, we still have to find that all the safety issues are resolved. It's a matter of how much additional detail and how much additional engineering

you have. All across the board in 1, 2, and 3 you can draw that line that follows along with the standard review plan minimum safety findings, and that line is common to all three of those levels of standardization, plus you've got ITAACs that carry you through to ensure that the as-built plant matches what you certified.

COMMISSIONER ROGERS: Well, I just wanted to try to understand a little bit better the whole notion behind the phrase "safety reduction foreseen from reduced standardization."

MR. VIRGILIO: With additional standardization you get additional safety benefits, as we've all discussed here today. And with less standardization, to an extent, I think there is an over --

COMMISSIONER ROGERS: But that would not necessarily relate to the design, though. I mean, they may relate to other questions such as being able to maintain it or something.

DOCTOR MURLEY: What I had in mind, this phrase, I think the -- I don't think the reduction in safety relates to design, quite frankly. Because 50.59 almost says that it can't change in a fundamental safety way. Where it affects is the

operating experience area that I was mentioning.

COMMISSIONER ROGERS: Well, it might be well to make that point clear, to separate that out.

DOCTOR MURLEY: Yes.

COMMISSIONER ROGERS: Because it is-- it's built into the SECY right now, and one might infer that this relates to the design.

DOCTOR MURLEY: Yes. That's a good point.

COMMISSIONER ROGERS: It probably relates to other matters than design.

DOCTOR MURLEY: Yes.

CHAIRMAN CARR: The intangibles of standardization are in standardized training, standardized spare parts, you know, all the things that go along with it that contribute to safety.

COMMISSIONER ROGERS: I think I'll just pass.

CHAIRMAN CARR: Commissioner Remick?

COMMISSIONER REMICK: Well, first I'd like to compliment the staff on the SECY paper. I thought it was very concise. Table 1 was extremely helpful to me to put the various levels in perspective, so I want to compliment you on that.

I guess I'm becoming convinced or have been convinced that there's a need for some kind of

controlled flexibility beyond what 50.12 provides for possible amendments. My big experience with 50.12 some of you might remember was the Clinch River project, and it was not a simple process by any means. So I'm not sure that 50.12 provides the type of flexibility that I think is needed.

The proposed two-tier approach is one possible way of incorporating the flexibility. One of the biggest difficulties on the technical side -- I don't know what the legal implications are -- would be the ability to adequately develop what's in tier 1 and tier 2 in a very concise manner and hopefully in a manner that would be little confusion in future years, what was in and what was not in. But I think it's worthy of consideration.

My understanding is that OGC provided you, Doctor Murley, with documents some time in the past outlining what they thought was level detail in Part 52, required in Part 52. And although I think I lean where Commissioner Curtiss is, that somewhere between 2 and 3 is where I'm starting to come out, I think we certainly have to -- I have to still consider a level 1. So if I look at level 1, 2, and 3, and I look at what the General Counsel has provided of what Part 52 requires on level of detail, do we know that level 1,

2, and 3 would provide that level of detail? And if you don't remember, the 1s were that it would be at least FSAR, perhaps final FSAR level. Would all three levels provide that type of detail?

MR. VIRGILIO: Yes, and 2 and 1 more.

COMMISSIONER REMICK: Allow final safety resolution of all safety issues? I think you've answered that already in the positive. Is that correct?

MR. VIRGILIO: Yes. In all three cases, you're going to have sufficient information to make your safety judgments.

COMMISSIONER REMICK: Permit judgement on whether the proposed ITAAC will work?

MR. VIRGILIO: In levels 1, 2, and 3, yes, you will.

COMMISSIONER REMICK: Permit a design specific PRA?

MR. VIRGILIO: Yes.

COMMISSIONER REMICK: Permit the drafting of procurement and construction specs?

MR. VIRGILIO: Yes. And what we talked about earlier today was without recourse to significant additional engineering on the part of the applicant.

COMMISSIONER REMICK: Okay. And then there was another. It says the detail on the certifying rule should permit replacement of old equipment with the latest advances without the need for NRC approval.

MR. VIRGILIO: It becomes a problem in level 1.

COMMISSIONER REMICK: Level 1.

MR. VIRGILIO: Where your recourse is 50.12 for making changes to the design. You've certified that level of detail.

COMMISSIONER REMICK: Okay. Now you've answered the question on the ABWR and System 80+ where you essentially -- you say that essentially those are about level 2 submittals. Excuse me, I guess Bill said that.

DOCTOR MURLEY: I think they actually characterize it as somewhere between 2 and 3.

COMMISSIONER REMICK: Oh, okay. And some exceptions like I&C you don't have, and so forth.

Okay. Now would you consider --

CHAIRMAN CARR: Let me step in for a --

COMMISSIONER REMICK: Yes, please. Go ahead.

CHAIRMAN CARR: That's where you say they

currently are, right? What do you think they're requesting to be certified? You heard them pitch what they want certified. Where does that fit in your levels?

MR. VIRGILIO: Depends on the system. For some systems I believe that they'll have the detail and would --

CHAIRMAN CARR: No, I don't mean --

MR. VIRGILIO: -- would accept certification.

CHAIRMAN CARR: I don't mean where they happen to be now. What did you think they want in --

MR. VIRGILIO: Approximately level 3.

CHAIRMAN CARR: Three.

DOCTOR MURLEY: First I should say, though, that I at least have not had any discussions with General Electric on the two-tiered approach.

CHAIRMAN CARR: Yes.

DOCTOR MURLEY: So we're --

CHAIRMAN CARR: And I gather that industry hasn't had a long time to look at your papers.

DOCTOR MURLEY: That's right.

CHAIRMAN CARR: So I assume there's going to be some iteration here.

DOCTOR MURLEY: Yes.

COMMISSIONER CURTISS: And when you peg their certification at level 3, that's a combination of tier 1 and tier 2?

MR. VIRGILIO: Yes. That's correct.

COMMISSIONER CURTISS: I gather tier 1 would be somewhere down a ways?

CHAIRMAN CARR: Well, I think we're back to what you said. Thirty percent of a -- or half.

COMMISSIONER CURTISS: Standardization, I guess in my view, is a two-sided coin. The first side is provide all the information up front and get it finalized. And the other side of the coin is and don't change it, perhaps with the exceptions that have been identified on obsolescence, developments in the state of the art and interferences.

And I guess that's why I see the tier 2 distinction being so critical, because that moves you away from standardization to the extent that you can 50.109 -- 50.59 issues, and unless the safeguards that were cited Monday by Mr. Rowden prove to minimize the extent of 50.59 even more than we've seen in the past.

CHAIRMAN CARR: The only thing that would be certified would be tier 1.

MR. TAYLOR: That's true.

CHAIRMAN CARR: And therefore, the only

thing to be standardized would be tier 1, actually.

COMMISSIONER CURTISS: That's quite a ways down, isn't it?

MR. VIRGILIO: What they envision for certifying is what you typically see in chapter 1.2 of an FSAR today, which may be about 100 pages of design information and 20 pages of layout --

CHAIRMAN CARR: Yes, it's a basic plan description is all it is.

MR. VIRGILIO: It's implemented by the staff safety evaluation report.

COMMISSIONER CURTISS: That's one of the questions I have. I don't mean to jump in here, but while we're on it I asked the question on Monday about what was meant in Mr. Rowden's statement that the level of detail in tier 1 would be what's contained in an SSAR 1.2 based upon an SER level of detail, which is in 1.2 of the SER. I went back and pulled one of those out since the meeting and got the Shoreham one. The SER on 1.2 is a page and a half.

MR. VIRGILIO: Let me try to clarify that. I read the transcript over and it is a little bit confused. What the intent is is to go back to the Shoreham FSAR and pull chapter 1.2 of that FSAR, then supplement it with the staff's SER in total. And that

would be what the proposal is, as I understand it right now.

COMMISSIONER CURTISS: 1.2 chapter level of detail --

MR. VIRGILIO: 1.2 in your FSAR.

COMMISSIONER CURTISS: -- general description --

CHAIRMAN CARR: FSAR.

MR. VIRGILIO: FSAR. Now that's a general description of the facility.

CHAIRMAN CARR: It's a plant description.

MR. VIRGILIO: And it is a description of the systems. It'll talk a little bit about the batteries, for example. It'll tell you what IEEE standards the batteries are designed to meet. It'll tell you you've got four batteries and they're separate and independent.

Now what they would propose to do in addition to that would be go back and look at the staff's SER with regard to the battery system and supplement that section 1.2 of the FSAR with the discussion from chapter 8 of the SER on batteries.

COMMISSIONER CURTISS: Everything that's covered in the FSAR --

CHAIRMAN CARR: Description, only a little

more detailed.

MR. VIRGILIO: Yes. If you think about an FSAR being 20 volumes, this may be about three-quarters of one volume.

DOCTOR MURLEY: Commissioner, I don't know if I understood you to say that the tier 2 material would not be certified. That's true, but it would be standardized, as I understand it. They -- the applicant would view that as being approved as part of the certification process.

CHAIRMAN CARR: But he has the option of changing, as long as he doesn't change it --

COMMISSIONER CURTISS: It depends on whether you view certification as a one-sided coin or a two-sided coin.

DOCTOR MURLEY: They could change it through 50.59 process, but they would not -- my understanding is they would not envision doing that at all between --

CHAIRMAN CARR: But I don't have any control over it if they do do it.

COMMISSIONER CURTISS: We'd get notified, but that's right.

CHAIRMAN CARR: Notified.

MR. PARLER: In any event, Mr. Chairman,

the tight controls over changes to what is in the standardization rule which impose a very high threshold for changes, that certainly, at least as I understood the discussion Monday, would not apply to whatever is in tier 2.

CHAIRMAN CARR: That's right.

DOCTOR MURLEY: The 50.59 process is, as you know, employed by operating plants. We require them to keep records of it. We sometimes go in and audit it. And we feel that we have -- that it is not abused, that we have control over the process.

CHAIRMAN CARR: But it doesn't necessarily lead to standardization.

DOCTOR MURLEY: That's right.

MR. TAYLOR: That is correct.

CHAIRMAN CARR: They're not abusing it, but--

DOCTOR MURLEY: Okay.

COMMISSIONER CURTISS: Let me put it differently. If you look at Part 52 as constituting sort of a quid pro quo where the quid was the applicant, the vendor in this case, supplying essentially complete design information up front, in exchange for that and in exchange for an opportunity for the public to participate early in the process,

two things flow from that: issue preclusion -- you could not raise issues later in the process that you've had an opportunity to raise at the front end, vendor certification or the COL; and backfit protection -- the Commission would not come in and change the provisions of the certified, in this case, design, same thing for the COL.

If you'll look at it that way, then -- I'm not sure I've reached a final view on the two-tier approach -- but what it seems to me to be saying is that they are seeking -- I want to follow-up with the General Counsel's question -- they seem to be seeking issue preclusion for all tier 1 and all tier 2 issues but with backfit protection as we understood it on Monday under 50.109, not the Part 52 procedures but with the flexibility under 50.59 to change.

Question. Does that diminish the quid pro quo in any respect? Do you say that our part of the deal -- a prove it up front right for the public to participate and protection against at least Part 52 backfit -- is met by an equal quo in this case, the commitment not to change that part of the certified design? It's important for tier 2 to be referenced in some way so as to be certified in their view, as I understand it, so they get those protections.

Now it's not clear to me. The question I guess I had that I'd like to follow-up on is do you get issue preclusion with their approach under 50.59? What are the rights that would attach if an issue is 50.59 in tier 2 from the standpoint of opportunity for a hearing either before or after that change has been made? Either now or at some point I'd like it if Bill could address that.

MR. PARLER: Well, the paper covers that to some extent. To the extent that you have changes, you could have challenges raised later on, either at the CPOL stage or after the CPOL is issued prior to the time of authorization for licensing which the statement of considerations suggests -- and I've already alluded to earlier in this meeting, was not necessarily what the approach had in mind, that is to defer the resolution of issues and defer possible challenges to the time that the plant was ready to operate -- but certainly to the extent that the applicant or the vendor could have an agreement in the certified design rulemaking proceeding that certain things have been resolved a particular way in tier 2, and therefore the issue should not be raised again. It would seem to me to make it kind of difficult for the issues to be successfully raised again, even

though the tier 2 resolution is not a part of the rule. That's the sort of hybrid that is kind of puzzling to me.

On the other hand, I said in this paper that I had no legal objection to it. Mr. Virgilio at the beginning pointed out that there were two policy issues involved. I would agree with that. I've heard some of the discussion here. I do not know how the Commission would wish to come down.

All that I can say is that the effects of the tier 2 approach, say in the level 3 context, that are talked about in the middle of page 11 and that were summarized to some extent on the slides are not necessarily completely compatible with some of the goals that the Commission expressed in its statement of considerations to Part 52.

Having said that, there is a need I gather from what I have heard for flexibility. Indeed, the Part 52 rule and its statement of considerations recognizes that. A question is whether you have to have a two-tier approach as described in order to provide the requisite flexibility for the several reasons that have been mentioned. So it's not just flexibility. It's also issue preclusion, which perhaps I would question about whether the trade-offs

are equivalent or roughly in parity.

COMMISSIONER CURTISS: It's a difficult question. There are some statements in the statements of consideration that talk about -- as they were described, suggest this tier 2 approach. At the same time, as I think the industry acknowledged on Monday, the so-called 52.97(b)(2) provision which simply says if you make any change in your license, including a change in the ITAAC, that shall be considered an amendment and require a hearing before operation, seems to me to reflect a sentiment as well about how you strike the balance between flexibility on the one hand and the 50.59 or some other approach and stability or standardization as we've called it here.

DOCTOR MURLEY: It seems to me, Commissioner, that there might be some additional-- if this flexibility under 50.59 were allowed, I felt that we in the staff for operating reactors kept a relatively close eye on it so that it didn't become abused. And it could be that maybe there are some procedural requirements on how 50.59 is implemented that the Commission might want to consider.

For example, there is a three part test as you know to decide whether an issue involves an unreviewed safety question. I remember when I was a

regional administrator I would have my staff periodically look at their 50.59 reviews, because the rule does require them to keep records, and where we were able to go in and look at those at any time and decide ourselves if it -- and we were the ultimate arbiter, I felt, on that three part test as to whether an issue did involve an unreviewed safety issue. And if we felt it did, then we said no you cannot do that under 50.59.

COMMISSIONER CURTISS: One of the observations I guess I've had about 50.59 is that, while I don't have any disagreement with the way it's been implemented in the past, it has been implemented in the context of single plants, customized plants where it didn't make a lot of difference if they went in for a single plant and 50.59, let's say, a steam generator replacement.

Question. Are there considerations that have to do with standardization and the need to keep those plants of a given vendor certification looking alike in some respect that would suggest a criterion under 50.59 that would focus on that aspect? As I say, that's the -- when we take the 50.59 approach and apply it to standardized design, I think there are additional considerations that arise that may call --

DOCTOR MURLEY: Yes.

COMMISSIONER CURTISS: -- for some modified approach if one was necessary.

CHAIRMAN CARR: I would think after the plant started operation you're under a configuration control problem rather than a standardization problem, and there are going to be changes made that won't be the same for all plants. Some guy will have a bad component that somebody else didn't buy.

DOCTOR MURLEY: That's like we're seeing in Callaway and Wolf Creek. They are slowly changing.

CHAIRMAN CARR: So you would have to look at that, but I doubt that we'll maintain the same degree of standardization throughout the life of the plant that we have when we started.

COMMISSIONER CURTISS: For example, if we say that it's important for us to know that this pump or this valve in the aux. feedwater room has to be reachable and has to be designed in a certain way so that if that issue comes up we can go ahead and step in and treat that issue the same for all plants. If it's been 50.59, our ability to do that diminishes at the plant, and if that's a consideration that we'd like to see standardization so that we can treat that valve or that pump the same way should it lead to a

problem, that's the kind of consideration that --

COMMISSIONER ROGERS: Excuse me.

COMMISSIONER CURTISS: Go ahead.

COMMISSIONER ROGERS: This point of configuration control I think is a very interesting one that I hadn't thought about in terms of the long-term effects here on standardization. Do we contemplate something in granting the construction permit operating license to do anything beyond what we've been talking about --

DOCTOR MURLEY: Yes.

COMMISSIONER ROGERS: -- with respect to 50.59, maintain standardization --

DOCTOR MURLEY: We have asked the applicants for certification to submit their tech specs, their maintenance program, their surveillance program, and in general their overall reliability assurance program that will assure us that the level of safety we think is in the certified plant will be maintained over the life of the plant. Now we haven't got into a lot of detail in reviewing this, but that is our means of --

COMMISSIONER ROGERS: It's safety, but not standardization.

CHAIRMAN CARR: But if they make a change

to the certified portion of the plant they have to get our permission.

DOCTOR MURLEY: That's correct, yes.

CHAIRMAN CARR: What we're getting standardized is the certified portion of the plant.

COMMISSIONER ROGERS: Yes.

CHAIRMAN CARR: I mean, at least we've got configuration control over that piece of it, other than from a safety standpoint.

COMMISSIONER ROGERS: Well is that true? Once the plant is built, everything in the standard design could, if there is a tier 1, tier 2 approach here, anything in tier 1 that was approved initially and at the time that the operating license was granted would not be subject to 50.59 later on in the life of the plant?

CHAIRMAN CARR: That's what's been said.

DOCTOR MURLEY: After the OL, that's a good question.

COMMISSIONER ROGERS: Suppose ten years down the road they want to change something and--like a 50.59, could they do it?

MR. PARLER: Well, we have a regulation, 52.97, that says any modification to, addition to, or deletion from the terms of the combined license,

including any modification to or addition to from the inspections, tests, criteria, et cetera, is a proposed amendment to any such license. There shall be an opportunity for a hearing.

But if something is not an amendment-- and you figure that out on a case by case basis -- but is a change that's under 50.59, a change and not an amendment, you can go the 50.59 route, no matter whether something is in tier 1 or tier 2 or anyplace else.

COMMISSIONER ROGERS: It's just a question of whether we could start to drift apart and lose standardization after having established it initially.

COMMISSIONER CURTISS: You can't -- if I understand it correctly, you can't 50.59 anything in your license.

MR. PARLER: You can't change something that's in the license.

COMMISSIONER CURTISS: They are under standardized designs, right?

CHAIRMAN CARR: My understanding was we were going to make tier 1 part of the license.

MR. VIRGILIO: Yes.

COMMISSIONER ROGERS: Then the answer is no, it could not happen. Okay.

CHAIRMAN CARR: That's what they said yesterday, that they were going to make it part of the license -- or Monday, I mean.

Commissioner Remick, it's your question period.

COMMISSIONER REMICK: As I was saying, I have several questions that relate to the GE and CE submittal in reference to levels and implications. I can get those outside this meeting, but I'd like to pick up on the discussion because I was going to bring up some similar questions.

I wondered if anybody has given thought to the idea -- and I say this not facetiously, but to put it in perspective -- of something called ASARA, as standard as reasonably achievable. Has anybody thought about a condition in the combined operating license to the owner or industry owners group commitment that in making something like 50.59 or whatever it's tailored to be, if one goes with a two-tier, which would assure that consideration to the advantages and so forth of standardization be included in the 50.59 type of reviews? I think you've alluded to some things very close to that here in your discussion.

MR. TAYLOR: Well, the opportunity for

hearing and challenge at the time of combined license would help to --

COMMISSIONER REMICK: It certainly does.

MR. TAYLOR: -- what you will.

COMMISSIONER REMICK: It certainly does.

MR. TAYLOR: -- cause them to hesitate --

COMMISSIONER REMICK: The condition or commitment might still assure it in those cases where they wanted to take that risk anyhow.

Yes?

MR. PARLER: Mr. Chairman, keeping in mind the goals of standardization is a point that is emphasized in the Part 52 and the statement of considerations now, even if the request is a granting of exemptions or amendments I would assume that if there is something like a tier 2 approach that would permit the use of 50.59 in connection with that tier that there would be a similar admonition from the Commission or the staff, if not by clarification or regulation in the approval that's issued by the rule.

COMMISSIONER REMICK: Okay. One other question. Have you thought about if the Commission opted for either level 1, level 2, or level 3, what the implications on staff resources might be?

DOCTOR MURLEY: Not in detail, but I

alluded to them. The greater the amount of detail that comes in, the greater the amount of effort by the staff. And it's not linear. It's geometric, I think, because --

CHAIRMAN CARR: The other side of that is you don't have to go ask for more.

COMMISSIONER REMICK: Knowing the staff, they'll ask for more.

DOCTOR MURLEY: No, no. We'll ask questions. In fact, it's a matter of understanding what we've got in front of us. And there will be two aspects to it.

One is, my managers will have to -- and I'll direct them to lay out some guidelines for the scope and depth of this massive amount of material that would come in under level 1. That's a complete design. And we don't quite know how to quantify it, but people talk in terms of roomfuls of information. So we'd have to sort out what -- the scope and depth that they review.

And then once -- even once that's done, there will be a large amount remaining we believe that will engender Qs and As because we don't understand some detail of it. So I can't give you a firm answer, but the more detail the more staff effort it will take

we feel.

COMMISSIONER REMICK: So you don't know whether we have adequate resources if we went one way or the other?

DOCTOR MURLEY: That was the important caveat that I put in my answers to whether we had enough staff.

COMMISSIONER REMICK: Okay.

DOCTOR MURLEY: It depends a little bit on the decision that the Commission makes.

CHAIRMAN CARR: The schedule depends on the decision we're going to make.

DOCTOR MURLEY: Yes.

COMMISSIONER REMICK: If you look at Table 1, my last question -- I'm sorry, I forgot I had this one. If you look at Table 1 -- and I guess I'm coming out somewhere between 2 and 3 personally at the moment, 2.46 or 2.32, I don't know which -- but if you look at level 2, starting with 7, component descriptions and characteristics, and if where you see the C there for certification, if that were changed to flexibility and then one had some kind of a provision as General Counselor says is already in Part 52 or we had something which I say you might call ASARA which would hopefully guarantee that people would very

seriously consider the importance of standardization, if that wouldn't provide reasonable standardization and yet, you know, provide the other benefits and what we're trying to get here.

Is there anything that you see wrong with something between 2 and 3 which would be basically taking Table 2 -- whether I would put item 8 in or not, I'm not quite clear at the moment, but changing the Cs to Fs, if there would be some potential for flexibility.

CHAIRMAN CARR: Where are you going to start changing the Fs?

COMMISSIONER ROGERS: Seven on?

COMMISSIONER REMICK: It would be 7 on, yes.

CHAIRMAN CARR: We don't do that today. I mean, they review that.

COMMISSIONER CURTISS: There'd be less information than we --

CHAIRMAN CARR: That's less information than we're doing today when we license.

COMMISSIONER REMICK: No, it would be in the application. It would not be in certification. I'm sorry. I would eliminate the C and replace it with an F.

CHAIRMAN CARR: Well, but that's what I say. Today when we license the plant to operate we've got that detail. And you're saying we're going to give it a combined license without that?

COMMISSIONER REMICK: I'm saying it basically would be in tier 2. Some of those items would be in tier 2, so there'd be flexibility.

MR. VIRGILIO: As I said earlier, we could pick any point, you know. We've just offered four points on a spectrum of choices.

COMMISSIONER REMICK: I understand, but I'd like to hear the advantages and disadvantages of something like that.

MR. VIRGILIO: We specifically asked industry with regard to the 50.59-type test whether they had considered a factor into control standardization, as you alluded to earlier. And they went back and considered it for some period of time and came back to us and said it would be very complicated and we don't know how we could do it right now. So we asked them to think about that and that was their response, so I'll offer you that with regard to flexibility and your proposal to maybe have another factor in addition to the three factors for an unreviewed safety question. I'm not saying it's out

of the question. That was just their response.

COMMISSIONER REMICK: Okay. Well, basically what I'm trying to say here is suppose you took level 3 and added in the items starting below the line there that are in level 2 as A&C? It's a 2.3. It's a 2.4. It's something like that. Are there obvious advantages or disadvantages is the question I'm asking. I realize it can be done, depending on what the Commission decides, but what are the implications?

MR. VIRGILIO: I think the implications are you would probably get more engineering done for those issues than you would have otherwise.

MR. TAYLOR: You have the engineering.

COMMISSIONER REMICK: Okay.

COMMISSIONER ROGERS: Could I just jump in for a second?

COMMISSIONER REMICK: Sure.

COMMISSIONER ROGERS: I have to get recharged in between my questions.

As you've pointed out, these levels 1, 2, 3, and 4 are just examples of some possibilities. Have you thought of any more general principles for establishing levels beyond just the cut-off here at the traditional SRP? In other words, is there any way

that one could establish some kind of a general rule that might guide essentially the kind of level definition that you've established here?

MR. VIRGILIO: With regard to the differences between 2 and 3, remember it's the risk-significant physical attributes. That's a characterization I like to fall back on when I think about how do I describe the difference between 2 and 3. It's the lessons we've learned from operating experience now incorporated in the certification, focusing on those key attributes where we've known or have discovered problems through operating experience.

COMMISSIONER ROGERS: And that's going to be different for every kind of a system that you look at, right?

MR. VIRGILIO: That's correct.

COMMISSIONER ROGERS: This just happens to be the HVAC system, so this kind of a characterization would be quite different for some other system.

MR. VIRGILIO: That's correct.

COMMISSIONER ROGERS: Well, it sounds to me as if it's going to be very difficult to kind of wrap that up in any kind of a general statement of what would be in tier 1 and what would be in tier 2. It would depend very much on the system and the

particular design overall, and it would have to be negotiated individually it seems to me, decided individually rather than as a Commission policy, a generalized Commission policy. Am I right on that?

It sounds very difficult for me to say that the Commission could decide through a policy decision of some sort what would go into tier 1 and what would go into tier 2 if we adopted a two-tier approach, because it all depends on what system you're talking about.

DOCTOR MURLEY: Quite frankly, Commissioner, I think that we need to probably -- you need to give us some guidance and then we need to come back to you one more time with that guidance --

COMMISSIONER ROGERS: Well, we need help on this, I think.

DOCTOR MURLEY: -- about how we would implement it and how you -- how we would finally do it. Because, I agree with you. I don't know how you would formulate a general level type of standardization right now based on what we've given you.

COMMISSIONER REMICK: But you would need the guidance if the Commission approved a two-tier or whatever?

DOCTOR MURLEY: Yes.

COMMISSIONER REMICK: You would need that.

DOCTOR MURLEY: Yes.

COMMISSIONER REMICK: And some indication about where you might draw the lines in general. But we look to the staff and the industry to negotiate, perhaps coming back to the Commission for approval, presumably coming back.

MR. TAYLOR: Yes. You'd have to agree for what's to be certified.

CHAIRMAN CARR: Well, we've agreed not to vote until we get the ACRS comments.

COMMISSIONER REMICK: Oh, absolutely. Absolutely.

MR. TAYLOR: You would ultimately be there.

CHAIRMAN CARR: I'd hesitate, personally, to get onto a tier 1, tier 2 approval until I got the staff's input on just how they thought they could make it work.

COMMISSIONER REMICK: Oh, sure.

COMMISSIONER ROGERS: Well, could you comment on that? How do you see the tier 2 approach? I mean, what's your feeling? Is it a nice little way of looking at it?

CHAIRMAN CARR: I got the impression you wanted to look at it a little.

DOCTOR MURLEY: Yes. I think we could-- I asked my staff that and I've thought a lot myself. I think we could make it work. I do believe that tier 2 is going to take quite a few -- I mean -- tier 2 or level 2?

CHAIRMAN CARR: Tier 2 --

COMMISSIONER ROGERS: Two-tier.

CHAIRMAN CARR: Two-tier approach that the utilities --

COMMISSIONER ROGERS: Not level.

DOCTOR MURLEY: We feel quite comfortable that we could make that work. We would put in tier 1 the things that we felt were absolutely necessary.

CHAIRMAN CARR: But would that not be business as usual?

DOCTOR MURLEY: No, because the -- even though there is this flexibility under 50.59 to change the tier 2 stuff, there is an incentive for the industry not to do that, not to make changes, because there is -- it's always challengeable at some stage as to whether they did follow the right -- made the right decisions under 50.59. So I personally don't think there's going to be a lot of changes, that they will--

and we, the staff, can keep a very close eye on it so that they only use it when you run up against one of these real problems like obsolescence or fit-out problems. So I think we can make the tier 1, tier 2 system work.

CHAIRMAN CARR: Commissioner Curtiss?

COMMISSIONER CURTISS: Well, I guess I don't have any questions. I just have a closing observation.

Commissioner Rogers kind of touched on the same point of confusion that I guess I have. It's been a very helpful briefing and I think between Monday and this briefing at least I personally have a better feel of the entire range of issues here.

At the same time, and if we wait for the ACRS views I guess what we've got before us is a SECY paper that's a notation vote with four levels set out, two of which probably aren't envisioned or contemplated or maybe even permitted under Part 52.

I gather from what you're saying here, to try to distill some of the key points that I see, the level of information today that we get for a plant may range from level 1 to level 3. There are certain systems or components that we may actually be getting level 1 information on today in the FSAR and the Qs

and As process. There may be other systems today that we don't get that level of detail and in fact may get down to level 3.

So I'm reluctant, I guess, to distill it all down to a directive that you use level 2 or you use level 1, but I'm intrigued by the thought that there are certain principles that -- in fact, this has been one of my frustrations as I've talked to my staff. It's difficult to understand this without resorting to examples, and then it seems to me it's difficult to implement a policy that consists of a series of Commission guidance on the heating coil type for the HVAC system.

MR. TAYLOR: Yes, it is.

COMMISSIONER CURTISS: I want to think about this, and I'll be anxious to see what the ACRS recommends. But the key principles it seems to me that emerge that may provide guideposts in my mind are:

One, I don't think we ought to request any less information than we do today. I don't think we ought to bind the licensee -- in this case, the vendor and the COL holder -- to any lesser extent than they are today.

Two, I think we ought to -- whatever level

it is, I think we ought to in the context of standardization be able to say that we are looking at and responding to the risk-significant physical attributes based upon the lessons that we have learned from our key operating experience. And in large part that's what standardization is all about, in my judgement, taking advantage of the experience that's been gained over the past and applying it to the future reactors. And that's, I guess, a second consideration.

Third, a point that's been touched upon in the context of the 50.59 discussion. It does seem to me that from the standpoint of changes -- and that goes to the question of tier 1 versus tier 2, if we use a two-tiered approach -- ought to be leavened -- I don't know if ASARA is the right acronym or whatever the concept is, but some consideration ought to be given not only by the license holder but by the Commission as well about the extent to which changes on issues that are approved, whether in -- well, in this case in tier 2, diminish the level of standardization that we've sought to attain in reviewing tier 2 information.

Now there may be other considerations and it's fortunate that we've got some time to think about

this and get the views of the ACRS here when they meet next month. I'll pursue my concerns individually as I think about this, but this has been very helpful for me.

CHAIRMAN CARR: I guess I need a little explanation as to why you think the level 1 degree of standardization would make the availability of components more difficult to assure, which is a comment in the paper there.

MR. VIRGILIO: I think over the life of the certification you'll find vendors that would supply these components going in and out of business. And what you would probably force is custom design. You would have the specifications laid out for a valve or a pump and what you would force is somebody having to custom-design or custom-build that valve or pump in order to meet the certified specifications. That's the intent of that statement.

CHAIRMAN CARR: Except there is -- you're talking about the life -- you don't mean during the construction period, then?

MR. VIRGILIO: No. I would mean over the life of the certification.

CHAIRMAN CARR: Over the life of the plant. And so you're talking about that becoming part

of the license, the certified portion of the plant. But there is a method in there for him to apply for an exemption to that.

MR. VIRGILIO: Certainly, 50.12.

CHAIRMAN CARR: One of the reasons, obviously, for approving an exemption like that is there's no other source.

And you said that you roughly figured it would take about a year to revise the standard review plan. Let's suppose we went to level 1 or 2. Do you have to redo the standard review plan?

DOCTOR MURLEY: Yes, we would. We'd have to do it mainly to give, as I said, the staff guidance on scope and depth of review.

CHAIRMAN CARR: Are you going to have to do it anyway?

DOCTOR MURLEY: Not for the evolutionary plants.

CHAIRMAN CARR: No, no. I'm talking about the evolutionary plants. If we go to level 1 evolutionary plant, do you have to revise the standard review plan?

DOCTOR MURLEY: We would certainly -- if not revising the standard review plan, I'd have to prepare one that would give them guidance on what they

should look at and what they shouldn't look at. Now whether we did it in the exact context of a standard review plan, I think it would more likely be an addendum.

CHAIRMAN CARR: A supplement.

DOCTOR MURLEY: A supplement to the standard review plan.

CHAIRMAN CARR: Want to take a random guess at how many FTE and delay we're talking about or is that negligible in the overall picture?

DOCTOR MURLEY: Just a thought. My guess is it would take us about six months to do it. And if we look at what it's taking to prepare a standard review plan for license renewal, it's taken our section six months or something.

MR. TRAVERS: Yes. It's on the order of six to eight months.

DOCTOR MURLEY: Yes. And how many people are working?

MR. TRAVERS: That's to prepare it. And then, of course, there's a process to getting it approved, including the ACRS --

DOCTOR MURLEY: What I would probably do is the same thing.

CHAIRMAN CARR: Well, do you have to do

that --

DOCTOR MURLEY: I'd have a separate organization.

CHAIRMAN CARR: At level 3, would you have to do that? I'm trying to find out where we depart from business as usual.

DOCTOR MURLEY: I don't think so. No. For the evolutionary plants, the amount of detail that would come in under level 3 I think we are handling now. I think we're kind of reviewing --

CHAIRMAN CARR: So level 3 is roughly business as usual?

MR. VIRGILIO: Yes, it is. With the addition of ITAACs, I would say it's business as usual.

CHAIRMAN CARR: Well, to balance off Commissioner Remick, I'm somewhere between 1 and 1.05, I guess. But I'm flexible within that range.

Any other comments?

I'd like to thank the staff for the briefing. The Commission has agreed to hold voting on the staff's paper SECY-90-241 until we have received the Advisory Committee on Reactor Safeguards' view. ACRS views are expected shortly following their August 9 to 11 meeting. During this period, the Commission

will be considering the industry's views and the staff's options in formulating a position to meet the goals of preserving public health and safety and achieving standardization for the next generation of plants built in this country.

It would be helpful, I think, if you could probably give us a paper that tells us how -- what problems you see in implementing the tier 1, tier 2 industry approach so that we have some basis to factor that into our decision. I'm still, I guess, a little uneasy with the hazards in going to a level 1 or level 2 from our standpoint. So if you could, after you get a few comments from the industry on our approach, maybe you can give us a piece of paper to kind of summarize how you see it at that point in time.

COMMISSIONER REMICK: Ken, you said level 1 and 2. Did you mean that or tier 1 and 2?

CHAIRMAN CARR: Both. I mean, I'd like you to -- you're going to get comments from the industry, no doubt, on this approach. And so I think if you could wrap it all up in some kind of a "here's how we see it and here's what we think the problems are," it would be helpful to me anyway.

I personally favor submittal of procurement specifications and construction and

installation specifications for all structure systems and components in order to ensure standardization as well as safety. However, I would consider the staff's recommendations on those structures, systems, and components for which it might not be feasible to obtain this level of detail or it might not be necessary to achieve standardization and therefore for which only a level of detail which provides the key physical attributes for components would be obtained in these areas.

Any other comments?

We stand adjourned.

(Whereupon, at 4:24 p.m., the above-entitled matter was concluded.)

CERTIFICATE OF TRANSCRIBER

This is to certify that the attached events of a meeting of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON ESSENTIALLY COMPLETE DESIGN ISSUE FOR PART 52 SUBMITTALS

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: JULY 18, 1990

were transcribed by me. I further certify that said transcription is accurate and complete, to the best of my ability, and that the transcript is a true and accurate record of the foregoing events.

Carol Lynch

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ESSENTIALLY COMPLETE DESIGN FOR PART 52 SUBMITTALS

JULY 18, 1990

Contact: M.Virgilio
Phone: 492-1257

Essentially Complete Design 1

TWO POLICY ISSUES

DESIGN DETAIL

FLEXIBILITY TO MAKE CHANGES

Essentially Complete Design 2

THREE VARIABLES

CONTENTS OF THE APPLICATION

MATERIAL AVAILABLE FOR AUDIT

MATERIAL IN CERTIFICATION

Essentially Complete Design 3

FOUR LEVELS

IDENTICAL PHYSICAL, FUNCTIONAL AND PERFORMANCE CHARACTERISTICS

PHYSICALLY SIMILAR/IDENTICAL FUNCTIONAL & PERFORMANCE CHARACTERISTICS

IDENTICAL FUNCTIONAL & PERFORMANCE CHARACTERISTICS

FUNCTIONALLY IDENTICAL/SIMILAR PRINCIPAL FEATURES

Essentially Complete Design 4

LEVEL 1

APPLICATION

ESSENTIALLY COMPLETE DESIGN

- DESIGN CRITERIA & BASES
- SYSTEM FUNCTIONAL DESCRIPTIONS
- SYSTEM PERFORMANCE REQUIREMENTS
- FAILURE MODE AND EFFECTS ANALYSES
- SYSTEM P&IDs / FACILITY LAYOUT DRAWINGS
- ELECTRICAL / I&C SCHEMATICS
- COMPONENT PERFORMANCE CHARACTERISTICS
- PHYSICAL ATTRIBUTES, ORIENTATION & LOCATION FOR COMPONENTS
- GEOMETRIC ASPECTS FOR SUSPENDED COMPONENTS
- COMPONENT SUPPORT / RESTRAINT SPECIFICATIONS

FINAL CONCLUSIONS ON SAFETY & STANDARDIZATION QUESTIONS

Essentially Complete Design 5

LEVEL 2

APPLICATION

ESSENTIALLY COMPLETE DESIGN
- DESIGN CRITERIA & BASES
- SYSTEM FUNCTIONAL DESCRIPTIONS
- SYSTEM PERFORMANCE REQUIREMENTS
- FAILURE MODE AND EFFECTS ANALYSES
- SYSTEM P&IDs / FACILITY LAYOUT DRAWINGS
- ELECTRICAL / I&C SCHEMATICS
- COMPONENT PERFORMANCE CHARACTERISTICS
- KEY PHYSICAL ATTRIBUTES FOR COMPONENTS

FINAL CONCLUSIONS ON SAFETY & KEY STANDARDIZATION QUESTIONS

Essentially Complete Design 6

LEVEL 3

APPLICATION

ESSENTIALLY COMPLETE DESIGN
- DESIGN CRITERIA & BASES
- SYSTEM FUNCTIONAL DESCRIPTIONS
- SYSTEM PERFORMANCE REQUIREMENTS
- FAILURE MODE AND EFFECTS ANALYSES
- SYSTEM P&IDs / FACILITY LAYOUT DRAWINGS
- ELECTRICAL / I&C SCHEMATICS
- COMPONENT PERFORMANCE CHARACTERISTICS

FINAL CONCLUSIONS ON SAFETY QUESTIONS

Essentially Complete Design 7

LEVEL 4

APPLICATION

PRELIMINARY DESIGN

- DESIGN CRITERIA & BASES
- SYSTEM FUNCTIONAL DESCRIPTIONS
- KEY COMPONENT PERFORMANCE CHARACTERISTICS

TRADITIONAL PSAR LEVEL OF DETAIL
FOR A TWO STEP LICENSING PROCESS

Essentially Complete Design 8

ALL LEVELS

AUDIT

AS NECESSARY TO SUPPORT SAFETY FINDINGS
TO A DEPTH THAT REVEALS:

PHYSICAL AND PERFORMANCE ATTRIBUTES FOR ALL STRUCTURES, SYSTEMS AND COMPONENTS AFFECTING SAFETY

SPECIFICS OF INSTALLATION

Essentially Complete Design 9

LEVEL 1

CERTIFY

INFORMATION FROM APPLICATION, REVIEW AND AUDIT NEEDED TO SUPPORT:

- ACCEPTABILITY
- CONFORMANCE
- REASONABLE ASSURANCE

AND STANDARDIZATION

- PHYSICAL ATTRIBUTES
- GEOMETRIC ASPECTS
- SUPPORT AND RESTRAINT DETAILS

Essentially Complete Design 10

LEVEL 2

CERTIFY

INFORMATION FROM APPLICATION, REVIEW
AND AUDIT NEEDED TO SUPPORT:

- ACCEPTABILITY
- CONFORMANCE
- REASONABLE ASSURANCE

AND STANDARDIZATION

- KEY PHYSICAL ATTRIBUTES AT COMPONENT LEVEL

Essentially Complete Design 11

LEVEL 3

CERTIFY

DESIGN CRITERIA AND BASES
SYSTEM FUNCTIONAL DESCRIPTIONS & PERFORMANCE REQUIREMENTS
FACILITY LAYOUT DRAWINGS
SYSTEM P&IDs

INCLUDE BY ASSOCIATION AND CONTROL VIA 50.59

ADDITIONAL INFORMATION FROM APPLICATION,
REVIEW, AND AUDIT NEEDED TO SUPPORT:
- ACCEPTABILITY
- CONFORMANCE
- REASONABLE ASSURANCE

Essentially Complete Design 12

FLEXIBILITY TO ACCOMODATE CHANGE

CHANGE VIA SECTION 50.12

CHANGE VIA SECTION 50.59

Essentially Complete Design 13

LEVEL 4

CERTIFY

DESIGN CRITERIA AND BASES
SYSTEM FUNCTIONAL DESCRIPTIONS
KEY COMPONENT PERFORMANCE CHARACTERISTICS

ESSENTIALLY ENTIRE APPLICATION

ECD Backup 3

ITAAC

VERIFY IMPLEMENTATION OF CERTIFICATION

SUPERIMPOSED ON EXISTING FRAMEWORK

- DESIGN VERIFICATION
- QA/QC
- PRE-OP AND STARTUP TEST
- DESIGN RECONCILIATION
- NRC INSPECTION PROGRAM

ECD Backup 1

FACTORS INFLUENCING DESIGN DEVELOPMENT

ASSURANCE OF FEASIBILITY AND COST
CUSTOMER DESIRES
MANUFACTURER NEEDS
CRITICAL PATH
LICENSING REVIEW

FSAR - AN OUTPUT OF THE PROCESS

ENGINEERING COSTS

ECD Backup 2

STATUS OF EVOLUTIONARY DESIGNS

$ INVESTED

% COMPLETE

PARTNERSHIPS

PASSIVE DESIGNS

ECD Backup 4

ITAACS

TWO TYPES

PERFORMANCE AND CONSTRUCTION ATTRIBUTES
FUNCTIONAL REQUIREMENTS

CONTENT AND LEVEL OF DETAIL

IMPLEMENTATION

HVAC SYSTEM AT VARIOUS LEVELS

	1	2	3	4
INFORMATION FOR ALL STRUCTURE/SYSTEMS AND COMPONENTS AFFECTING SAFETY (SCOPE)	A&C	A&C	N	N
INFORMATION FOR SAFETY RELATED AND RISK SIGNIFICANT STRUCTURES/SYSTEMS AND COMPONENTS ONLY (SCOPE)			A&C	A&C
1. DESIGN CRITERIA AND BASES	A&C	A&C	A&C	A&C
2. SYSTEM FUNCTIONAL DESCRIPTION	A&C	A&C	A&C	A&C
3. SYSTEM PERFORMANCE REQUIREMENTS	A&C	A&C	A&C	N
4. FAILURE MODE AND EFFECTS ANALYSES	A&C	A&C	A&C	N
5. SYSTEM P&IDs AND FACILITY LAYOUT DRAWINGS	A&C	A&C	A&C	N
6. ELECTRICAL & I&C SCHEMATICS	A&C	A&C	A&C	N
7. COMPONENT DESCRIPTIONS AND CHARACTERISTICS				
AIR INTAKES (RANGE FOR CAPACITY)	A&C	A&C	A&F	N
FILTERS (RANGE FOR EFFICIENCY/CAPACITY)	A&C	A&C	A&F	N
DUCTS (RANGE FOR SIZE)	A&C	A&C	A&F	N
FANS (RANGE FOR CAPACITY)	A&C	A&C	A&F	N
DAMPERS TYPE (RANGE FOR CLOSURE TIMES)	A&C	A&C	A&F	N
FLOW CONTROL DEVICES (TYPE)	A&C	A&C	A&F	N
AIR CONDITIONING UNITS (RANGE FOR CAPACITY)	A&C	A&C	A&F	N
COOLING COIL TYPE (e.g., CHILLED WATER)	A&C	A&C	N	N
HEATING COIL TYPE (e.g., ELECTRIC)	A&C	A&C	N	N
FAN TYPE (e.g., VANE AXIAL)	A&C	A&C	N	N
FAN DRIVE (e.g., DIRECT)	A&C	A&C	N	N
FILTER TYPE (e.g., CHARCOAL)	A&C	A&C	N	N
CHILLED WATER CIRC. PUMPS (RANGE FOR CAPACITY)	A&C	A&C	N	N
8. PHYSICAL ATTRIBUTES AND CONFIG. OF EACH COMPONENT	A&C	N	N	N
9. GEOMETRIC ASPECTS OF SUSPENDED COMPONENTS	A&C	N	N	N
10. COMPONENT AND STRUCTURAL SUPPORT DATA	A&C	N	N	N
11. AS-PROCURED COMPONENT PERFORMANCE DATA	N	N	N	N

TRADITIONAL REVIEW (SRP)

TRADITIONAL REVIEW (SRP)

A=APPLICATION C= CERTIFICATION F=FLEXIBLE/CHANGE W/O 50.12 N=NOT EXPECTED IN APPLICATION

TABLE 1