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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

SUB-COMMITTEE ON EARLY SITE PERMITS

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WEDNESDAY,

SEPTEMBER 6, 2006

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The meeting was convened in Room T-2B3 of Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, at 1:00 p.m., Dr. Dana V. Powers, Chairman, presiding.

MEMBERS PRESENT:

DANA V. POWERS	Chairman
GRAHAM B. WALLIS	Vice-Chairman
J. SAM ARMIJO	ACRS Member
THOMAS S. KRESS	ACRS Member
MARIO V. BONACA	ACRS Member
OTTO L. MAYNARD	ACRS Member
WILLIAM J. SHACK	ACRS Member
JOHN D. SIEBER	ACRS Member

NRC STAFF PRESENT:

DAVID FISCHER ACRS Staff

CHRISTIAN ARAGUAS

CLIFF MUNSON

TONY HSAI

DAN BARSS

PAUL PRESCOTT

BRAD HARVEY

NAN GILLES

BOB WEISMAN

ALSO PRESENT:

MARVIN SMITH

EDDIE GRANT

GUY CESARE

DAYNA HERRICK

GEORGE ZINKE

A-G-E-N-D-A

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

1:02 p.m.

CHAIRMAN POWERS: The meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards, Subcommittee on Early Site Permits. I'm Dana Powers, chairman of the subcommittee. Members in attendance are Sam O'Neill, I guess Mr. Bonaca is not quite with us yet, Otto Maynard, Bill Shack, Jack Sieber, Graham Wallis.

The purpose of this meeting is to discuss and develop lessons learned as a result of the North Anna, Grand Gulf, Clinton early site permit reviews. The subcommittee will hear presentations by and hold discussions with representatives of the NRC staff, Dominion Nuclear North Anna, System Energy Resources, Exelon Generation Company, Southern Nuclear Operating Company, and other interested persons regarding this matter. The subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for deliberation by the full committee to the best we can over the impending jackhammering that is evidence that we're working on our site, at least. Mr. David Fischer is the designated federal official for this meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register, August 15, 2006. Let me just comment, this is a subcommittee meeting, and so it can be relatively informal as far as participation, and in fact I encourage discussion as the presentations go along, both the subcommittee and the speaker, and with the audience and the speaker. However, to do that kind of informal discussion, you have to recognize a transcript of the meeting is being kept, and will be made available as stated in the Federal Register notice, so you speakers, especially impromptu speakers, should come to a microphone, they should identify themselves, and speak with sufficient clarity and volume so they can be readily heard. And so if you want to make a comment, somehow get our attention, and there are microphones here and there. And I encourage that to happen because we can't have free-flowing discussion in a full committee meeting, but we can in a subcommittee meeting. And this is an opportunity to have discussions to clarify and to better understand what people are discussing if ever there were one.

We've received no written comments or

requests for time to make oral statements from any members of the public regarding today's meeting. That doesn't preclude them from making comments in the subcommittee meeting, so if you want to make a comment, again, just get our attention, be recognized, and arrive at a microphone.

Let me say that it is my perception that on the part of both the licensees and the staff the early site permit exercise we've been through was just outstanding. Exceptional quality work on both parties. And so in looking at lessons learned, it's not because we identified any catastrophic flaw that needs to be cauterized, we need to - we're simply taking an opportunity to look if we can refine what already appears to be a functional regulatory process, one that was well exploited by the applicants, and well executed by the NRC staff, in my perception. I compliment everyone that, though the documentation was voluminous, I found it very readable. And when I say very readable, I'm even talking about the geology sections which truthfully strain my vocabulary and Webster's Dictionary to explore. So I myself am relatively excited about what was done for the ESPS, and this is again more refinement, and a chance to brag on yourselves for a job well done on all parts.

Licensees' presentations to the subcommittee were exceptional as were the staff presentations.

With those introductory comments I will turn to the subcommittee and ask if any of the members have comments they would like to make to open up the presentations. And with that, I think we're in a position to proceed ahead with the agenda. And Chris, I think you're up.

MR. ARAGUAS: Okay. Good afternoon, my name is Christian Araguas. I work in NRR, and I'm one of the newer members to the early site permit team. So forgive me if I don't have all the answers to your questions, but I do have the technical staff here to support a full discussion.

CHAIRMAN POWERS: There is no forgiveness here. We are a merciless crowd.

(Laughter)

MR. ARAGUAS: Okay.

CHAIRMAN POWERS: And so you better hope your staff can save you, otherwise.

MR. ARAGUAS: I'm hoping on it, sure.

CHAIRMAN POWERS: We'll see how your relationships are. Let him squirm a little bit.

MR. ARAGUAS: Before we move on to lessons learned, I just wanted to capture a comment regarding

the tone of what I plan to present today, and that is that the staff is currently working on updating the standard review plan. Those updates are due out March 2007. Along those lines we're also updating regulatory guides to support the new reactor licensing, what we see coming in the future for COLs and for ESPS.

CHAIRMAN POWERS: Let me see, what you're upgrading is the RSO2?

MR. ARAGUAS: No, we're going to update the standard review plan, which is the guidance for our COL applications.

CHAIRMAN POWERS: Yes.

MR. ARAGUAS: And within that guidance we'll also have the guidance for what the reviewers need for an early site permit as well as design cert. Right now it doesn't contain any guidance for what is required for an ESPECIALLY. That's though what RS-002 was attempting to capture.

CHAIRMAN POWERS: Right.

MR. ARAGUAS: But what the staff is proposing to do is to capture everything into one document, one review guidance document. And what will happen to RS-002 is the information that's located in Attachment 2, which is essentially all the criteria,

review criteria, will be taken out of RS-002, and will be replaced with a matrix pointing to all the applicable sections in the standard review plan that our reviewers should be looking at.

There is a plan for the RS-002. What we'll do is, aside from any guidance that we would capture in the standard review plan, we would incorporate certain things like what I plan to touch on in a bit here, which would be definitions, or any certain criteria that - general comments that would help out that we would want to capture in the RS-002.

CHAIRMAN POWERS: Let me just point out our executive director has shown his power and control over the construction activities, so thank you John - Then we put him right up with Chris, let him squirm a little bit. Didn't do any good. Brag on him and look what happens.

MR. ARAGUAS: Thank you, Dan. The first lesson learned that we identified, and I did want to stress that what I plan to talk about right now is really just what the staff feels like it can improve for future applications, for review of future applications.

So, with that, first lesson learned that we identified was to establish criteria for

identifying site characteristics and controlling plant parameter values included in an ESP. During the review of the North Anna, Clinton and Grand Gulf ESP applications, there was some confusion regarding what should be included in a permit. We didn't have a clear picture as the end goal, what would go on that permit. And to support that, to support the issuance of the FSER, the staff drafted with the help of OGC, drafted some guidance as far as criteria for what would establish a site characteristic, and what would establish a controlling PPE. These criteria were presented at a May 5, 2005, NEI meeting as well as I think here at the ACRS meeting. And the staff is planning to incorporate these criteria in its updates to the SRP as well as including these criteria in the RS-002.

The next lesson learned that we had was also establishing criteria for identifying permit conditions and combined license action items in an ESP.

CHAIRMAN POWERS: Let me just interject and say I thought that this was one of the finer hours of the staff, where they recognized that they were just going hog wild on permit conditions and action items and whatnot, and caught themselves up, and

rethought this whole issue, and came up with the criteria. I give you guys big strokes for that, that recognition, and then the subsequent definitions of some pretty crisp criteria for what's a permit condition, what's an action item.

MR. ARAGUAS: Right. I think early on we recognized that that was certainly a need to get that out before we issued the FSER. And as you mentioned, once we had that criteria, we certainly scrubbed the SERs to make sure that we did have a clear line as to what fell under a permit condition and what fell under -

CHAIRMAN POWERS: You might just go over those conditions.

MR. ARAGUAS: I have those here if you want me to read those to you.

CHAIRMAN POWERS: I think that would be useful.

MR. ARAGUAS: Okay. What we have, or what we propose to put in the standard review plan reads as follows, and this is for permit condition. The Commission's regulation in 10 C.F.R. § 52.24 authorizes the inclusion of limitations and conditions in an ESP. The staff should recommend a permit condition in only three circumstances. Number 1, the

staff's evaluation in the SER rests on an assumption that is not currently supported, and which is practical to support only after ESP issuance. An example that we have here is subsurface conditions discovered upon excavation for foundation construction.

The second criteria we have a is a site physical attribute is not acceptable for the design of site safety - sorry, SSEs important to safety, such as condition may call for action for remedy to remedy the deficiency. For example, cracked or weathered rock that is not acceptable for bearing foundational loads is replaced or filled with lean concrete, or otherwise treated so as to be acceptable. The attribute may be deficient only with respect to the particular type of reactor.

The third is the staff's evaluation depends on a future act, for example, a state regulatory approval may be called for. The permit condition is not needed when an existing NRC regulation requires a future regulatory review and approval process to ensure an adequate safety during design, construction or inspection activities for the new plant.

CHAIRMAN POWERS: I think that codicil at

the end where it says this is criteria for what not a permit condition is, is as important as criteria for what are.

MR. ARAGUAS: Right.

CHAIRMAN POWERS: I think you guys did a good job there.

MR. ARAGUAS: Do you want me to go through what we have -

CHAIRMAN POWERS: Please.

MR. ARAGUAS: Okay. The combined license action items identify certain matters that shall be addressed in the final safety analysis board. And that's the key distinction, is that it's just only asking that they be addressed by an applicant who submits an application referencing an ESP. These items constitute information requirements, but do not form the only acceptable set of information in the FSER. An applicant may depart from or omit these items, provided the departure or omission is identified and justified in the FSER. In addition, these items do not relieve an applicant from any requirement in 10 C.F.R. Parts 50 and 52 that govern the application. After issuance of a construction permit or COL, these items are not requirements for the licensee unless such items are restated in the

FSER.

Oh, and as I said, those criteria and definitions will be incorporated into the SRP for reviewers to make sure that they have a clear understanding as to what falls where.

CHAIRMAN POWERS: And I certainly invite the speakers to comment on these criteria as well because I attach great significance to them, and I'd like to make sure that everybody is happy with them.

MR. ARAGUAS: The third lesson learned, I think this is more a combination of a comment that we had and something that the staff is certainly undertaking to support high-quality applications. The first is a comment to future applicants, and that is that the Commission is expecting that they'll incorporate the lessons learned from these three ESPS into their applications, whether that be going through the RAIs from this process, the open items, how they were resolved, and any other review issues that came about. And that's obviously to incorporate efficiencies for the later applications that may be coming in.

The other is that with the staff undergoing the SRP updates, the proposed Part 52 rulemaking, and the updates to the reg guides, we're

hoping that that provides sufficient guidance, both to the reviewers and to the applicant, on what's required for application and what we should be reviewing.

CHAIRMAN POWERS: I think there are a couple of points come up in connection with this. Certainly when we look at the license renewal process, we found it took a long time for people to digest the RAI - the request for additional information - into subsequent applications. You know, I have no idea how many times we had to debate whether pony pumps were in the scope or not for the license renewal. And it's relatively important in the ESP to learn from the RAIs.

MR. ARAGUAS: Right.

CHAIRMAN POWERS: Well, I toss that out as a point to bear in mind. It's worth emphasizing.

MR. ARAGUAS: Right, and I think that's key, I mean, for future applications, like you said, to look at those kinds of things, because you really gain some efficiencies in recognizing what kind of questions the staff plans to ask, or so that we can anticipate, you know, putting them in a response.

CHAIRMAN POWERS: I mean, one of the problems of the subcommittee is of course we don't see the applications till that's all been done.

MR. ARAGUAS: Right.

CHAIRMAN POWERS: And whatnot. And so I think they set a fairly high standard for future applicants. But it is my perception a fairly high standard.

MR. ARAGUAS: The fourth item that I had on the list here was comprised of several different areas of where the staff feel that we need to update the review guidance in regards of the first-of-a-kind review process that we underwent. The first that I have listed here I've already discussed, which is the criteria for identifying site characteristics, controlling PROBLEMS, and COL action items, and permit conditions. And I just put that on there to reiterate the fact that this is something that is currently going to update its review guidance in those areas.

The second issue falls under the performance-based methodology for seismic hazards. And this came out of the review of the Clinton ESP application. The staff recognized that there was a new performance-based methodology approach for determining safe shutdown earthquake ground motion for the site. And this was not consistent with the staff's approved methodology in Regulatory Guide 1.165. The staff had not previously reviewed this

methodology and informed the applicant the choice to use this method would result in a delay in the completion of the staff's seismic review of the ESP application. Exelon elected to continue to rely on this new methodology, and on the 17th of February 2006 the staff issued its final safety evaluation report where it documented that the performance-based methodology implemented at the Clinton site was acceptable.

So to avoid future delays in the upcoming ESP and COL applications, the staff has decided to write a regulatory guide to capture this new performance-based methodology. And this is going to be what we call right now Draft Regulatory Guide 1146.

CHAIRMAN POWERS: Is it a substantive guide, or is it just endorse the standard?

MR. ARAGUAS: My understanding is it's a substantive guide. And this is scheduled to be issued March 30, 2007.

CHAIRMAN POWERS: Is there a draft?

MR. ARAGUAS: I think it should go out final March 30, 2007, and if there's - I don't know if, Cliff, you wanted to clarify on that?

MR. MUNSON: Over the din of noise -

CHAIRMAN POWERS: I know, John's failed

us. He seems to have only provoked them.

MR. MUNSON: This is Cliff Munson, I'm a geophysicist with NRR. The only correction I would like to make is the new regulatory guide is not replacing Reg Guide 1.165, it's an alternative.

CHAIRMAN POWERS: It's supplemental.

MR. MUNSON: Yes, it's an alternative. It'll cover much of the same material, but incorporate the latest methodologies, including the performance-based approach.

CHAIRMAN POWERS: The question, of course, is there a draft available on that?

MR. MUNSON: Not yet. We're working on that.

CHAIRMAN POWERS: I bring it up just because I've decided I don't understand the new methodology as well as I should, so I'm struggling to understand it a little better.

MR. HSAI: Dr. Powers?

CHAIRMAN POWERS: Yes.

MR. HSAI: Hi. Tony Hsai from Research. That draft regulatory guide is prepared to be sent out - scheduled to be sent out for public comment in October this year. It's called DG 1146.

CHAIRMAN POWERS: Okay. Thanks Tony.

MR. ARAGUAS: To support the staff's guidance, we're also going to capture this in the SRP updates as well.

The second item, or the third item I had listed under where the staff feels it needs to update its guidance is in regards to the major features of the emergency plan. During the review of the previous three ESP applications, several questions were raised regarding the level of review being conducted under the major features option for applicants that reference an approved emergency plan for an existing nuclear plant co-located to the ESP site.

Another question that was raised was regarding the definition of major features that industry felt there wasn't a clear definition in the regulations regarding that major features. We also received several comments regarding the level of finality that an applicant can receive regarding the major features route. In regards to the first issue, the staff recognizes that the need for updating the existing review guidance in NUREG-0654, Revision 1, Supplement 2, and that's the guidance for the major features option. Currently Supplement 2 calls for a review of the description of the proposed emergency plan for the major features option. This review

guidance in Supplement 2 we think should be revised to provide additional guidance relating to the level of review required under a description, as it's required for the major features option. The caveat to that is the staff feels that, even though we recognize that this update is necessary, we haven't had any commitments from industry to come in to submit an application supporting the major features option. So right now this has sort of fallen to the back burner in terms of priority. There is a plan to update it, but there isn't a schedule associated with when that update will occur.

Regarding the definition of major features, the staff feels that it's adequately defined in NUREG-0654, Revision 1, Supplement 2, and that reads that major features include the exact sizes of the EPZs, and the planning standards and evaluation criteria located in Section 5 of Supplement 2. To further that, the proposed Part 52 will capture language clearly defining what the major features of emergency plans are. And to address the third issue that we encountered, which was regarding the level of finality that an applicant can receive with the major features option, the staff is proposing to add additional language to 10 C.F.R. § 52.18, which

specifies the review of major features of emergency plans will be against 10 C.F.R. § 50.47, and Appendix C to 10 C.F.R. § 50, which are the basic emergency planning requirements that are directly associated with the reasonable assurance determination. Which is different from what's currently regulations, which states that the staff will determine if they're acceptable.

CHAIRMAN POWERS: You're not taking - I mean, all of the early site permits that we have gone through now have been for sites that are adjacent to an existing power plant which has an emergency planning plan in place that's reviewed and tested. So it seems to me it'll be relatively unlikely that there would be a major flaw in anything planned for the new site. I mean, a high probability of having a good emergency plan if a plant were built on the new site. So you don't see making any distinction between that kind of site and, say, a greenfield site where there's nothing else around it?

MR. ARAGUAS: I'd ask that Bruce, do you want to step up and address that question? Or Dan?

MR. BARSS: Dan Barss, senior emergency preparedness specialist. If I understood the question right, it was do we see a distinction or a difference

between a greenfields site and a site which may have an existing -

CHAIRMAN POWERS: Well, I'm sure you see a distinction, but the language that was quoted to us here makes no such distinction. I mean, you could say, well, if you've got a plant next door, just say see theirs, or reproduce the major features out of that. I mean, you could do something very much more summary if, you know, Grand Gulf is Grand Gulf. I mean, it's not going to change very much.

MR. BARSS: I think the answer lies in that the criteria is the same, whether or not you're a greenfield site or an existing site asking for a new reactor. The criteria that we use is the same because it's a new licensing action. Now, that criteria may be easier for them to meet in that they can reflect or show something in the existing plant that has already met that criteria so that it should be easier for them in the application to show that. But the criteria that we put forward I don't think is going to be different from one site to another. It's still the same basis criteria.

CHAIRMAN POWERS: Well, I mean the difficulty that was encountered is in just exactly what you wanted to hear about. That's, I mean we

ended up counting hospital beds at one place, which is clearly not a major feature. So the confusion is over what you want. I think that's - is my understanding of where the confusion lay? Not what was acceptable, but what was needed for the application.

MR. SMITH: I think it was -

CHAIRMAN POWERS: You'll have to come to a microphone. Because I think I understand exactly what you're saying.

MR. SMITH: It's Marvin Smith with Dominion. And I think the concern we had was that you have an existing site with an existing site emergency plan, and we simply intended to reflect the fact that a new plan on that same site would basically have the same major features of its emergency plan as the already existing one. And it wasn't a question of the criteria being different, it was a question of what we were surprised by is the amount, level of detail in terms of the review process required to find that a new plant could apply those same major features that had been there for years and been in use. And so it was really the level of review required to do that demonstration, not the criteria.

CHAIRMAN POWERS: I think that's - I mean, that's where the confusion was, or the challenge that

the applicant faces, is he just doesn't know what he's going to write, and how much you're going to demand, and it becomes a `bring me a rock' exercise.

MR. ARAGUAS: Right.

CHAIRMAN POWERS: And that's what you want to avoid is a `bring me a rock.' You want something - I mean, we can use what finally came out if you'll just say, yes, use what finally came out, and the guy from the greenfield site is kind of stuck. He doesn't know what to do. But at least the guys that are asking for ESPS near existing reactors by example know.

MR. ARAGUAS: Dan, do you have any follow-up to that?

MR. BARSS: I don't. Is there still a question I need to answer there?

CHAIRMAN POWERS: I'm still struggling to know how - I guess I still don't know what the answer is, except by case study.

MR. ARAGUAS: Right. I guess what he's asking is some clarification as to why there was such a detailed review.

MR. BARSS: Well, one, it's a learning process. So we're all learning. Two, the criteria that we used were applied uniformly to the three

different applicants in the review process. The three different applications, though, varied considerably in their degree of information provided. Just page count, if I remember right, one was about 38 pages, and another was 240-some pages, or something close to that. So a magnitude of, you know, 10, the difference there, as to what was provided. So the applicants didn't give us the same level of detail to begin with. But we did hold the same standard in each of those reviews to make sure, again, independent licensing action. We needed to make sure that those criteria were addressed, and that they were clearly addressed in the application so that we had a basis for making the decisions. That's why I think there were a lot of questions, and there was a lot of detail looked for in our review to make sure that we could see where those criteria were clearly met in the applications, or in the reference plans that may have already existed.

CHAIRMAN POWERS: But you can - what I'm struggling with is this. When I read the words "major features," I would have expected three pages at most. Three pages plus a map. That's what I would have expected. So, I mean you're reading it to a different degree of detail than I would *a priori* interpret the words. And I think the applicants had the same

problem, and I think it's reflected in the fact in one case you've got 20, and in one case you've got 240, where they didn't know what it is that you wanted. Okay? And they probably suffered as a result of that. And it's not because of any unwillingness on their part, it's they didn't know. And again, the next guy coming down the pike can learn by case study if he wants, but it's better if he just said here's what I want.

MR. BARSS: And we are attempting, I guess, to clarify that or do that in the standard review plan rewrite which is ongoing. And although it's more focused towards the COL, against the reg guide, or DG-1145 that was just recently published, to try and make clearer what we're asking for and when. So that applies to COL, not so much to ESP. So we recognize that need and we're attempting to clarify that for the applicant.

CHAIRMAN POWERS: Ordinarily I would say, yes, ESP is kind of a subset of COL. But here's one where for COL I would expect a great deal more detailed and major features. You know, much more than three pages and a map.

MR. BARSS: I'm sorry.

CHAIRMAN POWERS: I know. We soldier on

here. And that's fine. We're going to get a lot of things, a lot of COLs are promised to us. Are you in a position to give us a thumbnail sketch of what it is that you are going to put in this reg guide?

MR. BARSS: Concerning ESPS or COLs? Or both?

CHAIRMAN POWERS: Emergency planning.

MR. BARSS: Emergency planning.

CHAIRMAN POWERS: Yes.

MR. BARSS: Well, the reg guide is fairly well drafted. In fact, we hope that it will go out for comment in the near future. And it lays out in fairly, I think, deep detail the regulatory requirements, and ties them to guidance documents, most of them, I would say almost all of them in the EP area are existing guidance documents, NUREG-0654. And those are the criteria that have existed for more than 20-some years, and they continue to be the criteria that we will expect applicants to address. And they need to make clear in their application where and what part of their application and other plan meets those criteria, because that's what the staff is going to use to look for both internal to the NRC and also, since the offsite parts of those plans are reviewed by DHS, DHS will use that same criteria.

CHAIRMAN POWERS: Okay, so what you're saying, I think, and I could be wrong about this, is that for an ESP permit you're requiring the same level of detail and explanation, justification, et cetera, that you require for an operating license.

MR. BARSS: It depends on what they ask for. Remember, in the early site permit process there are three options in the emergency preparedness area. The early site permit only requires that we make a finding of no significant impediments, and that there be evidence that the state and local governments have agreed, or signed some kind of certifications that they agree to participate further in the emergency planning process. That basically clears the hurdle for an early site permit in the emergency preparedness area.

The applicant is given two options. One, they can ask for the major features option, or they can ask for the complete and integrated plan at the early site permit stage. It's the staff's position, and understanding that if they ask for a complete and integrated plan at the early site permit stage, that is equivalent to asking for a complete and integrated plan at the COL stage. Because they should get the finality in that finding. So the answer would be yes,

we expect to the same level of detail in an early site permit that asked for a complete and integrated plan as there would be in a plan for an operating reactor, the only difference being if it's an early site permit, nothing has been built yet. There will be a few items that will be ITAC'd, or have ITACs associated with them, because obviously they haven't built anything, they can't demonstrate some of the things that are needed, and some of the implementing procedures that come later may be necessary. But the planning level of detail would be equivalent to what an operating reactor would have.

CHAIRMAN POWERS: And certainly for a complete and integrated plan I agree with you. What is the guy that just wants major features to apply?

MR. BARSS: Well, currently the way the regulations are written, and the way our guidance is, RS-002 directs you to NUREG-0654, Supplement 2, and as was mentioned, that talks about a description of the planning, and not seeing the implementation. So what we would expect, using the current guidance and regulation, is we would expect to see a description of those items that are identified in Supplement 2 that meets the criteria that's in Supplement 2. I caveat that by saying what's there now because the proposal

in Part 52 is to I would say broaden the major features option to allow them to apply for more than what's in Supp 2 now, and to make it so that they can get – well, if you're familiar with the 16 planning standards, they could provide us information on one or several of those 16 planning standards, and give us a complete description of that planning standard, and get approval for that. That may go beyond just a description of the plan, but may even talk about, you know, the implementation, and particularly for an operating site, that is a feasible possibility and something that they could do, give you more than just description, because they have established programs that they can describe more fully. So with the rulemaking, assuming it goes forward the way that it's proposed, the major features option would be broadened to allow a lot more latitude, a lot more items to be approved at that early stage than what is currently in the guidance, and we think in the regulation the way it's written.

CHAIRMAN POWERS: And I think that's fine to do that. I'm still more concerned about the minimum set criterion. Like I say, when I read the word "major features," three pages including a map. I mean, that's just the way I interpret the words as

written in the regulation. That may not be a fair interpretation, but just sitting down, saying major features, that's what I see is three pages and a map.

MR. BARSS: I guess my quick view of that is under the existing guidance and the existing regulation, three pages and a map probably today would not be enough. However, in the future, assuming things are approved the way that we have drafted them and proposed them, three pages and a map probably would buy them a couple of major features, or maybe part of a major feature, but it may not buy them a whole lot. But whatever they propose would be found acceptable. They may get the size of the EPZ if that's what the map is, and that's one of the major features. They could get that approval, but they wouldn't get much more beyond that if that's the only information they provided us. So the answer is three pages and a map may be enough, but how much they will get with that just depends on what they are able to cover in those three pages. If they're double-sided, they may get a little more.

MR. GRANT: Dr. Powers, if I might jump in, it's Eddie Grant with Exelon. I think you've hit upon a key issue in that part of our difficulty in the emergency planning area for the early site permits was

the lack of a common understanding when we started the process, particularly on major features. We could have read it the same way you did, the way you do. We could have read it a different way, which Exelon did, which was, you know, we ought to be able to provide you as much information as we can, and get credit for that, and call those major features. Now, the understanding of the staff was somewhere in between with 0654 and Supplement 2, and there was some difficulty on exactly our understanding then even of that guidance, and did you have to meet all of the planning standards, could you break it down by criterion which are sub-pieces of the planning standard, and where would it go from there. And because we didn't have a good, solid common understanding when we began that process, I think we ran into some of these difficulties.

Another related piece of that is the end game, the finality, and what did we get out of a major feature. I think we also did not have a good common understanding of what a major feature approval, once we determined what it was, was going to buy us. Where were we - and I'm not sure we still do, until we actually try to implement the finality in a COL application under a major features ESP approval,

exactly where we're going to be. I think we're going to learn some more lessons as that occurs. So we still have a little ways to go, I think, on major features.

But we've made great strides, with the staff's help, on where we can go, and what we can do with regard to emergency planning, particularly in the area where Exelon tried to go, which was to provide as much information as we can because we do have that site next door with a great deal of emergency planning information available. And get as much credit for that as possible, which would now occur under the full and complete plan with open items that was discussed. Thank you.

CHAIRMAN POWERS: I guess I too am coming out saying I don't know what a guy now sitting down looking at things is going to do. You know? I mean, one option is always do everything as thoroughly and completely as you possibly can, and get approval for as much as you possibly can. I'm still more concerned about what the minimum acceptable set is, because it's entirely possible that somebody would say `I don't see a utility in doing it now because I'm not going to - I'm going to get this site approval, but I'm not going to make a building decision for 15 years. I know that

now. I'm not going to make it, so there's no point in me going to great heroic efforts now.'

MR. GRANT: Yes and no.

CHAIRMAN POWERS: And so I'm struggling with is he going to come in without a good understanding of what the staff wants for the minimum set. I mean, I think he knows exactly what the staff wants if he's going to do the best he possibly - as complete as he possibly can. I mean, there's a huge amount of guidance out there, some of which is being reexamined now. And as well we might expect, given some recent emergency contretemps. But I'm not sure the minimum set really knows this common understanding you speak of. Now, we'll get to this finality issue a little later, but just what do I put down?

MR. GRANT: If I might add just a little bit more then. Again, Eddie Grant, Exelon. That certainly is a valid concern with regard to the minimum set. However, I would say I doubt that you'll see - personal opinion here thrown in - I doubt that you'll see many ESPS coming in with the minimum set. Given the basis for an ESP is to get as much information off the table with regard to possible late litigation, typically I think you will see early site permits going with the full and complete plan get as

much emergency planning information approved, and again, off the table at the early site permit stage.

CHAIRMAN POWERS: Maybe that's the answer.

MR. BARSS: If I could - this is Dan Barss again. If I could, to I guess amplify or play off that. I think it was correct, as Mr. Grant said, that you know there was differences on the applicants as to what they applied for, what they thought they would get, and the staff was somewhere in the middle. RS-002 and Supp 2 was the line we held because that was the guidance that was out there for the first three. And the lesson learned, since that's what we're talking about, and hopefully we've implemented that in the rulemaking that's going forward, was to broaden that major features option, to retain it and to broaden it so that an applicant when he comes in now, and you say what's the minimum, under the rule change as we hope it will go forward they can choose that minimum. They can choose how much they want to apply for in the major features area, or how much or how little they want. And we have, I think, provided them that opportunity to make that a much broader spectrum for them than the first three applicants experienced. So since we're talking about lessons learned, I want you to leave with that clear understanding, that we've

learned that lesson, and we've tried to broaden the major features option to allow the applicants that flexibility in a regulatory space and a guidance space to provide both the avenues they need, to give them a clear picture of what they can apply for and what they can expect to get in that application. And we've also tried to make sure we tie it clearly to the regulations that will be used when we make the reasonable assurance finding. That was a flaw that the staff recognized as we went through the process when we tried to write these things was, okay, what do we write them back to. We don't have a regulatory tie. It wasn't clear in the regulations to us, and working through counsel we identified where we could tie that. But as the regulations hopefully will be when they're changed, the tie is very clear that it goes back to, as Christian said, to 10 C.F.R. § 50.47 and Appendix E, which is the same criteria that the applicant will need to meet at the COL stage.

CHAIRMAN POWERS: Any other comments on this topic?

MR. ARAGUAS: Okay, the next item I had was an issue that came out early on before the ESPS were actually submitted, and that was the applicability of 10 C.F.R. Part 21, Reporting

Requirements to ESP Applicants. Back in 2003 during a workshop on the construction inspection program framework document, there was a question that was asked about the applicability of 10 C.F.R. Part 21 reporting requirements to ESP pre-applicants and to ESP applicants. In response to that question, on June 22, 2004, the staff clarified its position in a letter, stating that the 10 C.F.R. reporting requirements as far as pre-applicants are concerned is that it's not directly applicable in the sense that the pre-applicant does not have any obligation under the regulations during the pre-application phase to comply with 10 C.F.R. Part 21 reporting requirements. For both the ESP applicant and the ESP holder, the staff stated that 10 C.F.R. Part 21 reporting requirements do apply, and because site characteristics form part of the basis for the design, and because this in turn forms the basis for the license, the staff feels it is appropriate to require that an ESP applicant and ESP holder have in place a 10 C.F.R. Part 21 program.

Another issue that came out through the reviews was the applicability of Appendix B to 10 C.F.R. Part 50 to ESP applicants. And this is similar to what we said for 10 C.F.R. Part 21 in the sense of

why we feel that they should have some sort of quality controls. The current regulations in 10 C.F.R. Part 52 do not require that a 10 C.F.R. Part 50 Appendix B quality assurance program be implemented in support of the ESP application. However, the staff determined that the ESP activities associated with site safety must be controlled by quality assurance measures sufficient to provide reasonable assurance that future safety-related systems, structures and components of a nuclear power plant or plants that might be constructed on the site will perform adequately. The staff believes that the level of quality used to control activities related to SSEs should be equivalent in the ESP and COL phases. The staff's position is that applicants must apply quality controls to each ESP activity associated with the generation of design information for safety-related SSEs that meet the criteria in Appendix B. The reasoning Again for this is that site characteristics approved at the ESP stage will form part of the basis for the design which in turn will perform part of the basis of the license. To avoid any problems in the future, the staff is proposing to modify 10 C.F.R. Part 50.55(f) Appendix B, and 52.17, and make these QA requirements applicable to ESPS. The staff is also

capturing this proposed change in the rule in the SRP updates.

CHAIRMAN POWERS: Let me - To a significant extent, the quality assurance requirements of Appendix B are in QA 1. And now we have these ISO standards coming out for quality assurance. Are you broadening or finding acceptable ISO standards?

MR. ARAGUAS: Paul, did you want to address that?

DR. PRESCOTT: Sure. This is Paul Prescott of the Quality Assurance branch. For as far as the ISO standards, we took a look at that based on a request for Commissioner Merrifield. In SECI 03117 we essentially found that ISO standards would not be an acceptable alternative to Appendix B. If you take a look, and it's in the paper, if you take a look at industries where safety is of concern, such a aerospace and automotive industry, they apply a substantial number of standards over and above the requirements of ISO. And so, as far as what we've seen so far, nobody tried to apply that, but our general view is right now that - and we supplied options to licensees that they could - of ways to implement it, but it'd be rather onerous to try and apply ISO to nuclear safety.

CHAIRMAN POWERS: I think I'm aware of this, and I bring the issue up because I think you want to capture that, if nothing else by reference. Because you are going to have people considering things like the EPR, and that's going to be rooted to some extent in the ISO kinds of standards. And I think you want to alert them to this kind of challenge that they face in ISO'ing it, as opposed to Appendix B. It's just a guidance kind of thing, okay? Because you're - what you did for Merrifield was in a different context.

DR. PRESCOTT: Right, absolutely.

CHAIRMAN POWERS: But I don't think it's going to be different. I don't think you'll come to a different conclusion in this context.

DR. PRESCOTT: No, I don't believe so.

CHAIRMAN POWERS: Yes. That's good. Because I think that's - we're seeing a lot of this ISO'ing, and it's a different, it's a little different. It's not the same.

DR. PRESCOTT: We've already done some overseas vendors and taken a look at them, and we're not seeing issues with the big suppliers such as AREVA, Mitsubishi Heavy Industries. It's the sub-suppliers that are of concern, that we're going to

have issues with them.

CHAIRMAN POWERS: That's right.

MR. ARAGUAS: Okay, the last item I had under what the staff needs to update in its review guidance is criteria for computing probable maximum flood. This was an issue that was captured during the proprietary review period for the FSER for the Clinton ESP application. During this proper view, Clinton identified - or Exelon identified a discrepancy between the calculated probable maximum flood elevation, and what the staff had included in its FSER. After several discussions with EGC, and after performing several independent analyses, the staff concluded that EGC's revised analysis conservatively estimated the probable maximum flood elevation at the Clinton ESP site.

The result of this was two lessons learned. And the first of that was that it's not the job of the staff to impose a bounding type of analysis and a staff value on the permit itself as a method to characterize the site. The other lesson learned was that the staff needs to update its guidance on - guidance and data used for computing the probable maximum flood elevations. And to my understanding that is part of the ongoing SRP updates. We are going

to incorporate review guidance on how it should be calculated.

That concludes what I have for staff lessons learned. What I've attempted to do here next was based on the list of lessons learned that had been sent to me. I think, Dana, you had drafted that list. What I've attempted to do here was capture somewhat of the discussions that were had from previous ACRS subcommittee and full committee meetings, and to touch on where the staff dispositioned these in terms of lessons learned.

The first item I have was regarding the review - reviewing the staff's analysis of hazards posed to the proposed site by explosions and transportation accidents on the Mississippi River. And just to provide a little bit of background regarding this, during the December 8, 2005, ACRS meeting on that SERI ESP application and the staff's FSER, the ACRS identified a concern on the evaluation conducted for potential hazards along the Mississippi River that could impact the ESP site. In light of ACRS's concern, the staff determined that the applicant did not meet Regulatory Guide 191, and therefore the staff requested additional information from the applicant to demonstrate compliance with 10

C.F.R. Part 100.

On March 8, 2006, SERI submitted Revision 3 to the ESP application, where it decided upon an alternate approach to meeting the regulations with respect to potential hazards along the Mississippi River. SERI performed a risk assessment to demonstrate the low probability for exceeding a peak positive over-pressure of 1 psi at the ESP site, as recommended by Reg Guide 191. The staff reviewed this analysis and performed its own confirmatory analysis to verify SERI's conclusions. On April 6 the staff met with the ACRS to present its analysis of SERI's submittal, and on the 14th the ACRS issued the staff its final letter report on the FSER documenting the satisfaction of the conclusions the staff drew.

This was, and what I wanted to point out here was this was an example where the staff made a mistake, and the NRC review process demonstrated its functionality regarding the ACRS ASLB commission. In this case, the ACRS identified a mistake in which the staff relied on engineering judgment when it should have conducted a confirmatory analysis to identify the flaws in the applicant's earlier methodology. As far as the review guidance for this, the staff feels that this was not an indication of poor or inadequate

review guidance, but merely a mistake on the staff's part. I just wanted to point that out. And that's all I have.

CHAIRMAN POWERS: I think a "mistake" is a stronger term than I would have used. What you find in all these applications is there will be statements made. Sometimes those statements are substantiated by quite a lengthy defense, and sometimes they're not. And there's a judgment involved in writing any technical document of where you go into a great deal of detail and where you assert something. And in this case, I mean it came to mind because an assertion was made, and I said, gee, I don't understand that. And the subcommittee pursued it, and we still couldn't understand it. And when we brought it to the staff's attention, they realized they couldn't understand it. Okay? And apparently when it was brought to the applicant's attention he couldn't understand it, and revised his analysis.

And the issue here is do we all have a common understanding of when we can make assertions and when we can't. Now, I don't know if you can ever write anything down that's definitive on that. That's a skill and a craft of engineering, I suppose. But yes, I mean, and congratulations to all parties on

resolving the issue well and completely, and we were very happy with the resolution, and thought a risk assessment was an excellent way to resolve this, by the way.

MR. ARAGUAS: Okay. Moving on to the second to last topic I had here was the review of the development and study of climate change for the next 20 years. And to my understanding this was a very familiar topic of the ACRS subcommittee and full committee meetings for all of the ESP applications.

The staff recognizes the ACRS concern, but does not endorse revising the ESP review standard or the SRP to develop new review procedures and acceptance criteria to account for climate change. And I'm sure this doesn't come as any surprise to you as a result of all the responses to the ACRS memos.

CHAIRMAN POWERS: It surprises me that you're not going to review the review standard, because that's what causes the problem. The problem is inherently a statement that we will examine the data for its applicability.

MR. ARAGUAS: Right.

CHAIRMAN POWERS: That's where you get into trouble on this. Because that's a broad and overencompassing thing, is it applicable, not only in

space but in time. That's what has to be revised. I mean, I don't think you can get out of this one without revising RS-002.

MR. ARAGUAS: I'm going to ask that, Brad, did you want to address that?

MR. HARVEY: There was a lengthy discussion between yourself - this is Brad Harvey, by the way, with the NRC staff, physical scientist - between the subcommittee and Dave Matthews back in July 6, 2005, on the review of the North Anna final SER where several points were made. One of them is that there is a lot of uncertainty involved with projecting climate change, and that it seemed that it would be inappropriate to potentially look at increasing the margin that you had asked the applicants to put in the site characteristics based on a fairly large measure of uncertainty involved with the current state-of-the-art with climate change. Just like you wouldn't ask them to reduce - or you wouldn't expect the applicant to come to us and ask for a reduction of a safety margin based on an aspect that had a large uncertainty to it.

The second point I wanted to make is that a lot of our climatic site characteristics are based on industry standards. The American Society of Civil

Engineers and ASHRAE, which is American Society of Heating and air conditioning ventilation, and a lot of building codes come out of those standards. And we would expect that these industry standard committees would be looking at climate change as things go forward, and adjust accordingly the standards that they would expect new facilities, not just power plants, but any major industrial and building done in the country to address. For instance, I do know that after the `91 - `92 hit of Hurricane Andrew on south Florida, that the ASCE had done a study of the effects of hurricanes potentially in coastal regions, and revised their wind load standards accordingly. And so I would expect this effort potentially to undergo as well in the future as the state-of-the-art knowledge in climate prediction unfolds. And also, there's also a lot of uncertainty among the climatic experts still today as to whether or not this is a real phenomenon that is going to impact and how it would impact the weather patterns throughout the country and throughout the world. So the staff position has been that basically it's up to the applicant after the ESP is issued to identify any potential major changes to the site. And that would involve, for instance, or include any significant climatic changes when they

come in at the COL to use the ESP as a basis for their COL application if there is changes in the methods and process and advances in climate change that would be incorporated at that point in time and identified as part of their COL in that application process.

CHAIRMAN POWERS: Well, a couple of responses here. First of all, I'm not sure that everything the staff does is an absolute prescription and devoid of any uncertainty. I don't think the staff is unfamiliar with uncertainty in its analyses. I'm equally not aware of too many things the staff does where it bases it on the assumption that a third party will do something, revise its standards. In fact, I can think of no example where the staff does that.

That's not the issue. The issue is in the RS-002 the staff said it would look at the applicability of the data. And here what you're looking at, I mean the thesis is we will look at historical climate data and assume that the next 50 years looks a whole lot like the past 50 years. And the question is, does it? And I have right here whole sets of papers that say no, especially on the Atlantic Coast and to some extent the Gulf of Mexico, the intensity of hurricanes goes through cycles. And

there are a couple of cycles. And sometimes those cycles are in phase, and sometimes they're out of phase. We happen to be entering an era when they're in phase. And some people say there's going to be more storm activity. And there seems to be no debate about this. This is based especially on the Atlantic Coast they have a history essentially since 1750, and it's about a 50-year cycle, and so there's a huge amount of, it's simply drawing a curve there. What the technical debate gets into is does more storm activity translate into more hurricanes of about the same size, more hurricanes with some of them including more very intense hurricanes, Category 5 hurricanes, or in fact more hurricanes but they're all weaker. And so yes, there is a very big challenge in looking at the consequences of these predictions.

And the staff might well take the position of, gee, that's in the scientific world. They've got to sort this out before I know how to react to it, and I will take the next 50 years, in which case all you have to do is set that down in the review standard, and say when we're looking at the applicability, we're looking at the geographical and not the temporal, but people ought to take a big enough history to make sure they capture this cycle effect, because that's

established and real. How it affects the intensity of hurricanes or the frequency of hurricanes is not established. That's - the inherent problem is the statement you wrote down in the RS-002 of reviewing the applicability. You know, the practical thing, am I going to do anything about this, or modify the historical data in some sense, the staff has probably taken a reasonable position. It says wouldn't know how to do it, could find an expert to move the curves up, move the curves down, leave the curves the same. Kind of at a loss here, so stay tuned and we'll see how things work, and if it works to the detriment we're going to have to make some changes. That's essentially your position. Fair enough. But you've got to change the words in the RS-002. I just don't see how you get out of it. And it seems to me it's a modest change.

MR. ARAGUAS: Right. Brad, do you have any follow-up comments to that?

MR. HARVEY: No, that sounds reasonable to me.

MR. ARAGUAS: Certainly we'll take into consideration any recommendations that you would have.

CHAIRMAN POWERS: I mean, your job is not to become experts in weather, though it's fascinating.

I will tell you, I've really enjoyed pursuing this issue. You will learn how happy you are not to have a job as a weather forecaster. Long-range weather forecaster. It's a very difficult field. And when you say it's uncertain, yes, you're right, but it's uncertainty, and you can make - you can solidify that by saying, gee, we've looked at this data (and actually do look at the data) and say it does not look like anything moves outside the bounds that we find tolerable, and I think you'll find that's probably true. It's more frequency. I mean, you already prescribe things that are Hurricane 4's and 5's, or maybe super-5's in some cases. And so you can tolerate a lot. It's more of a frequency thing. You could say, look, we're not taking any huge risk here by deferring in time. I mean, I don't think you've come up with an unreasonable approach to this, but again, your review standard which we took as, in looking at, which you provided us, as kind of gospel. It says you're going to do something you don't want to do.

MR. ARAGUAS: The last item I have here is I think we've touched on quite a bit, so I'm not sure if there's any more that needs to be added, but I'll read it. It's just that RS-002 should clarify how an

ESP application can rely on emergency plans for an existing nuclear power plant. But I think we've exhausted that one.

CHAIRMAN POWERS: I don't know if we've exhausted it, but we've certainly discussed it.

MR. ARAGUAS: Sure.

CHAIRMAN POWERS: And I come away not entirely clear on what you've done, but it may be it's simply a practicality. What you're doing is going to meet 90 percent of the cases you actually address.

MR. ARAGUAS: And I think that's an appropriate way to look at it. That concludes the staff's presentation.

CHAIRMAN POWERS: Now let me ask you a question you probably don't want to answer. I have been effusive in my praise of the licensees' applications and whatnot, as well as your SERs. I'll ask you now, what do you think of the applicants that you've gotten?

MR. ARAGUAS: As far as the three applications? I think, and this is my opinion, I think that they were pretty good, but there's certainly some room for improvement, some things that they could have been incorporated that we now realize are important. Small things like incorporating tables

of what they are identifying as site characteristics. Maybe in some cases they didn't follow exactly the sections that we called out in RS-002, or what was in the SRP. But beyond that I thought that they were pretty good.

CHAIRMAN POWERS: I assume that every time you write a request for additional information there's been a failure on someone's part. That either the staff's failed to explain things correctly on their expectations, or the licensee has failed to live up to those expectations.

MR. ARAGUAS: Correct, but I think that it's kind of hard to characterize because it is a first of a kind review.

CHAIRMAN POWERS: Sure.

MR. ARAGUAS: Putting that aside, pretty good.

CHAIRMAN POWERS: Pretty good, okay. Well, thank you. Members have any questions they'd like to pose? Very nice summary. Very nice summary. Well done. Looks like we're in good shape here.

MR. ARAGUAS: Thank you.

MEMBER SHACK: Just a question. Looking ahead, you know, is it clear what you're going to do with the ESP application and how well it's going to

fit in when somebody actually comes in with a combined license application?

MR. ARAGUAS: Nan, did you - Nan or Bob, did you want to take that one? I'll give you the expert in Part 52 here.

MS. GILLES: Nan Gilles with Division of New Reactor Licensing. And actually we are very much focusing on those issues right now as we are preparing for some of the combined license applications that are going to be referencing ESPS. And as we are preparing to possibly issue some of these very first ESPS. And we are looking at just those issues. We are looking very closely at the comparison that we're going to need to do at the combined license stage to ensure that the design that was chosen by the applicant is actually bounded by the parameters that were identified at the early site permit stage. And we are trying to carefully consider what exactly - what of those parameters exactly need to be discussed in the permit itself so that at the time that we do that comparison the staff has everything that it needs to perform that comparison, and the applicant knows what will be expected at the combined license stage.

MEMBER SHACK: Will this be incorporated by reference? How will the information be used in the

combined license?

MS. GILLES: Well, the site safety analysis report that was prepared at the early site permit stage will actually become a part of the combined license final safety analysis report. And that's really the largest piece of information from the early site permit work that will be used in the combined license stage. The information in the permit itself will be the site characteristics and design parameters that were used at the early site permit stage, and those will be used for comparison to actual values at the combined license stage, but the bulk of the information that will be used in the combined license review, or in the combined license application is the site safety analysis report, because that will actually become a part of the combined license final safety analysis report.

MEMBER SIEBER: It's the same as current plants. You find all this stuff in the first few chapters of the FSAR now.

MS. GILLES: That's correct.

CHAIRMAN POWERS: It's going to be an interesting set of feedback here. We'll learn a lot I suspect. I guess on my list I have Mr. Hegner next?

MR. SMITH: It's Marvin Smith.

CHAIRMAN POWERS: Okay.

MR. SMITH: Well, first let me say that I think several of the points that we'll be discussing here have already been covered probably more than adequately. So perhaps we can go through some of these fairly quickly.

I think one thing that I wanted to start with, again, my name is Marvin Smith and I'm the project director for Dominion for our early site permit project. And so I wanted to really kind of emphasize, I think it was perhaps partly something you brought out in your question, but you know, if you look at what we're talking about here today in terms of early site permit lessons learned, I really think that we need to sort of broaden that to think about this as lessons learned on site-related issues. Because there's going to be a lot of COL applications coming in. We think and we hope, in fact, that by going through this early site permit process as Dominion that we've had a little bit of a jumpstart on resolving some of those, and so when we do get into the COL we in fact, and there's always some question of finality, but we certainly do expect to benefit from that. And I think beyond that that it would be good for the COL applicants that are not doing early

site permits to pretty carefully review what happened for these early site permits, because I think a lot of the issues that were identified here and hopefully resolved or at least improved upon as part of this process will be directly applicable to COLs that will have to have the same material included in their COL applications. In fact, as you say, it's basically the early site permit can be thought of as essentially Chapter 2 of the FSAR. So you know, in essence, if you don't deal with it in an early site permit you're going to have to deal with it at COL.

And I think one of the things we feel like was a benefit of this ESP process is getting some of those issues discussed and evaluated, getting some of the RAIs issued and answered and responded to in the early site permit stage is at least getting it done, you know, before you're quite as far along as you might be in terms of a COL application. One example of that is in our case we did end up changing our cooling system methodology for our plant. And one of the things that meant, for example, is that the actual location on the site where you put the plant is therefore different. So you know, if you had deferred those kind of issues until a COL was submitted, you know, it's comparatively easy to relocate the

containment center line before you've located it.

(Laughter)

CHAIRMAN POWERS: A paper plant is really easy to relocate.

MR. SMITH: Well, you know, beyond a paper plant. Right now we're out there doing initial core borings, one of which is right down the middle of the containment center line, and so, you know, it was really a very good thing as part of this ESP process to realize when you're going to use cooling towers versus a lake for cooling, then that changes where the containment center line is going to be. So even beyond just the paper plant issue there is the physical exams and all that sort of thing, the geotechnical work that you do, et cetera, you know, for the COL, really do need to be a little more specific and exact. So again, I think one of the lessons learned we have from ESP is that it really does work. It gives you the opportunity to examine and think through and resolve some of these issues a bit earlier, and while there's some schedule pressure, it's less than you see in a typical COL application where you're actually planning on and have a schedule to build a plant and want to get on with it, et cetera. So, I guess that's the first point I really

wanted to make out of this is that's probably one of the biggest lessons learned from our viewpoint that we have in this whole process.

CHAIRMAN POWERS: The COL's going to be more demanding because you don't have the option of deferring things to the COL.

MEMBER SIEBER: Well, one of the issues is you do all this up-front thinking and planning before you spend a lot of money.

MR. SMITH: Right.

MEMBER SIEBER: That's obviously an asset to your construction plan.

MR. SMITH: Very much so, yes.

MEMBER SIEBER: It allows you to separate issues so that you can deal with the site issues with a good focus on it as opposed to typically putting it in the background while you worry about the plant, which is the old way of doing things.

MR. SMITH: Right.

MEMBER SIEBER: So I think that the logic is clearly here to do this.

MR. SMITH: Right, and I think, you know, a lot of companies have looked at this and said, well, gee, I can just skip past ESP and deal with this at COL.

MEMBER SIEBER: Not that easy.

MR. SMITH: But a lot of companies are going to do that, and I think you can do it, but what it's going to mean is that, you know, you really better look at the lessons learned from this early site permitting process because if you're not going to deal with it early, and you deal with it later, then the consequences of having to deal with it later can be more significant than having gotten it out of the way early.

Again, just you know, we discussed seismic a bit. Certainly Dominion is very supportive of this development of ASCE methodology. Just a little bit of a clarification. In our case we kind of looked at the older methodology and the ASCE and came up with an SSE that really bounded both. And we ended up using the older, more current methodology to support that final SSE. But what we wanted to do is have one that we were confident really could kind of work under either methodology. So that's sort of the approach we ended up taking, so we're very supportive of that.

We still believe there's some need to have some additional clarification on where you set the SSE. You know, one of the issues we feel like is not completely clear is, you know, is this something

that's important that the free ground surface or the foundation level. You know, if you look at a rock site like North Anna, it just seems sort of to me that the SSE that's the real issue is that ground motion that occurs at the foundation level, not what occurs at the free ground surface. But I still think there's some lack of clarity in the NRC guidance on this particular issue that we would recommend be clarified. Again, it gets back to this issue of, you know, if you're going to deal with this at COL versus ESP I think it's really important that you know exactly what you're doing from Day One on that. So.

MR. MUNSON: Can I comment on that?

MR. SMITH: Yes.

MR. MUNSON: This is Cliff Munson. We were bound by the regulation 100.23 defines SSE as free surface motion. Now, there is further explanation of this in the Standard Review Plan Section 3.7.1, and we agree with Dominion's comment that we need to provide additional clarification on this issue. And we are doing that in the regulatory guide we're developing currently. But we have to be careful that we follow, you know, what's in the regulation. So it is defined at the free surface. It's free surface motion.

CHAIRMAN POWERS: And you have to do that because it's the regulation, but we don't have to do that. We can say the regulation needs to be changed.

MR. MUNSON: Well, but what we end up doing for rock sites like North Anna that have thin soil layers that are considered incompetent that are going to be removed before the building is siting there is we allow them to define the SSE on a hypothetical outcrop of the competent material, which is in the free surface. That outcrop is defined as free surface ground motion. So I think we're not far apart on agreeing with industry on this issue. And as I did say, we will provide clarification in the new regulatory guide on this.

MR. SMITH: Thank you, I appreciate that. It just was an issue that caused us some confusion as we were going through the process, if you will. Again, we've - one of the things that has been apparent in a lot of the recent work on seismic is that, particularly for rock sites in the central and eastern U.S., you have a lot of high frequency content in your seismic, and you know, there's still - and there's a seismic issues task force, and a lot of ongoing work to really deal with and resolve that. And I guess my understanding, I'm not a seismic expert

to any extent at all, and I have more than enough fun reading through the geotech -

(Laughter)

CHAIRMAN POWERS: It's quickly becoming everybody's favorite section.

MR. SMITH: Have your dictionary with you, it certainly expands your vocabulary. But the high frequency, if you just look at it, you know, accelerations and peak ground accelerations that occur at very high frequencies involve extremely tiny displacements. And just sort of inherently you think that those are not likely to be all that damaging, but there's still a lot of equipment qualification and other issues that hinge on that that I just urge, you know, NRC and the industry to continue to work to clarify and resolve. As I say, I think in particular as you go into the COL aspects of this, that's going to be extremely important to get some of that work through.

MR. MUNSON: And just to comment further on that, we are interacting with industry on that right now on the high frequency effects, but we don't view that as an ESP issue because at ESP we are only evaluating the SSE as determined by the seismic hazard, the regional and local seismic hazards. So

that's more a design issue which is going to happen at the COL stage.

MR. SMITH: I understand, I just - we're approaching COL stage now, so.

CHAIRMAN POWERS: Living large in your imagination here.

MR. SMITH: Again, I understand it's really not per se an ESP issue, but like I'm pointing out here I think -

CHAIRMAN POWERS: Is it -

MR. SMITH: I think some of the things that we see in ESP, like that one, carry over to COL. And really I think, again, it's a good part of the ESP is that we've identified that issue, even though it's not necessarily resolved at the ESP stage, you know, it clearly brings it to the forefront. And as you say, I think we are working together towards resolving it. But it's the kind of thing that takes awhile, you know. You just can't, you know, resolve something like that in a very short period of time.

CHAIRMAN POWERS: Is the concern one of lack of knowledge, or is it a regulatory issue?

MR. SMITH: A little bit of both, I would say.

CHAIRMAN POWERS: I think maybe the

answer's yes.

MR. SMITH: I think the answer is yes. You know, it's - you know, if you're dealing with the high frequency issue, you know, there's the question of how much of that high frequency, and how does it actually get into the structure, et cetera. So there are technical and regulatory aspects, and I think that the answer's yes, and they both have to be worked through. So as I say, sort of inherently you have to think that such tiny displacements are not likely to be a significant risk or significant damage with perhaps, you know, some rules to say you don't use particularly vulnerable equipment, if you will, to relay chatter and things like that that can be affected by that. But most things are not going to be, so to me it's more a matter of, you know, you need to understand that this is going to occur, and you need to have it taken into account in your design in a reasonable way, and so forth.

MEMBER SIEBER: Well, it's sort of interesting, though. You look at the only design certification that we've done which is 600 and 1000. The seismic characteristics are already built into the plant design, so the question is you take your ESP seismic characteristics and match it to the plant

design, it's already been approved to see if it matches or not. You're not going to be redesigning for soil liquification or liquefaction or high frequency response. The plant is going to come as a box from some factory, and its seismic structure is already going to be there. So you'll just put the puzzle together.

CHAIRMAN POWERS: It seems to me some of the most vulnerable parts of the plant, the pipe laying out and whatnot, is deferred to the COL.

MEMBER SIEBER: Hangers and supports are, and probably the - well, I know that in APPLICANT 1000 the electronic part of the control room is high tech. That will have gone through 10 more evolutions before we ever get to - somebody will invent a new chip and the whole control room will change.

CHAIRMAN POWERS: That's right, that's right.

MR. SMITH: I think it's one case where, you know, we're looking at ASPWR rather than APPLICANT 1000. So we sort of have an advantage of working with GE up front to know what our SSE is. And so they've sort of got a little bit of an advantage to build some of that in.

MEMBER SIEBER: You can sort of force

them.

MR. SMITH: Right.

MEMBER SIEBER: It's like forcing Chevrolet to give you something that looks like a Dodge, you know what I mean?

MR. SMITH: I understand. So I guess the next thing is the plant parameters envelope. There's been a little discussion of this already. I think it was a little bit of a difficult concept on all sides. And the guidance was really not per se structured to support it, and I think we've learned a lot about how to do this, and I think a lot of the comments that were made by the NRC in their presentation addressed that. So I still think that, you know, we'd like to see the PPE provide the same level of finality as the specific design, as long as the design you choose falls within the envelope. And I think that as was discussed by the NRC, we do need and have learned how to pare down the list of parameters to the important ones. I think when we started we just sort of had an envelope that described a lot of things, many of which weren't used, or did not end up being important. So you know, we didn't know going in what was going to be important at the end, and so we kind of perhaps included a few too many things in Dominion's case, and

I think now understand that we could probably do a few less.

I think we've, again, talked through emergency planning in great detail. Again, our only thought was that, you know, it did take a lot more review effort to get major features for an existing site than we expected going in.

Again, some other areas that we found. You know, this one is just sort of a little example, and I think we eventually worked through it, but it took a little bit of effort, and it just goes to show how, you know, when you see guidance it can make things a little interesting. You know, you talk about - the guidance talks about essentially adding the weight of a hundred years' snow pack to the weight of the 24-hour winter PMP. Well, the 24-hour winter probable maximum precipitation here in Virginia as you might imagine is a lot of rain, like 19 inches of rain. And if you converted that into snow it would be, what, 19 feet. So you know, I don't think really the intent of that guidance was to, you know, sort of combine two unlike quantities, but if you looked at it, that's sort of what it stated or implied.

CHAIRMAN POWERS: We had the same problem at Grand Gulf, didn't we?

MR. SMITH: I think so, yes.

CHAIRMAN POWERS: That we were combining an improbable event with another improbable event to get a maximum that was never going to occur because you don't get 19 feet of snow in Mississippi. Since the dinosaur age it hasn't occurred.

MR. SMITH: Well again, it was like I say, really the maximum winter season precipitation is not one that's going to fall as frozen snow. It's going to be rain. And so certainly you need to take that rain into account in designing your structure so that if you have a snow pack on there, you don't rely on things to remove the water that might fall in the winter. You don't want to rely on gutters and down spouts that are clogged, if you will, in the sense of, you know, you might have in your house. So you certainly want to consider both as part of your design process, but the way you do that isn't, you know, to add two unlike quantities to come up with something that is not reasonable itself.

MR. HARVEY: May I make a comment here? It's Brad Harvey with the staff. I recognize the confusion that this issue caused for both the staff and for the applicants. And so the standard review plan 2.3.1 on regional meteorology that went out for

public comment earlier this year in February I think attempted to address this concern, and to give more guidance as to exactly what the intent here is in terms of adding these two unlikely events, and how they would potentially impact design.

MEMBER SIEBER: So what is the intent?

MR. HARVEY: Basically what it is is that if the design of the roof is such that the combination of both a 100-year snow load and the 24-hour winter problem - I think it's actually 48-hour, not 24-hour - probable maximum winter precipitations. You look at the design of the roof there and say it's just not realistic that that amount of, volume of water, liquid and snow could stand on top of the roof. But that's more really a Chapter 3 issue, not a Chapter 2.

MEMBER WALLIS: So what should they assume? What should they assume?

MR. HARVEY: They need to show that the roof can withstand, either through, again, assuring that your down spouts aren't clogged, or if you've got a containment that's dome-shaped it's an obvious situation where, you know, that's not a concern. But if you do have a flat roof, maybe some sort of measures need to be taken to assure that it would drain properly. And this is identified as a severe

environmental load.

CHAIRMAN POWERS: Is the staff just getting too prescriptive here? Maybe you should say show that your roofs can stand up to the loads that they would have historically experienced over some period of time. A hundred years is as good as any other number. And not tell them how to define that.

MR. HARVEY: Well, my challenge here is to put together site characteristics that need to be input to the design of the plant.

CHAIRMAN POWERS: Sure. Tell me how you define the maximum load that historically has shown up, and show me that your structure will stand up to it. Rather than prescribing add this plus this other thing and put it all on Tuesday or something like that. I mean, it just seems to me that you've just gone too prescriptive here.

MR. HARVEY: Well, this is based on a 30-year-old branch position that I relied.

CHAIRMAN POWERS: Sure. And we can say 30-year-old branch positions are open to discussion here. They're not sacrosanct.

MR. SMITH: I think sort of where we ended up on this is the 100-year snow pack, and then you define the liquid precipitation you expect separately,

and then say that your structure has to be designed for the combination of those two. So in other words, you have to design that if you have that kind of heavy rainfall on top of a roof already loaded with snow, at the design phase you take those two loads into account.

CHAIRMAN POWERS: Sure.

MR. SMITH: And but the branch position would have specified that you do that by adding the two together. That's what we have the difficulty working through.

MR. HARVEY: Well, if you see the way the site characteristics are presented, they are presented as two separate.

MR. SMITH: They're presented now separately. I think that resolved it.

MR. HARVEY: And we did not add them as site characteristics.

MR. SMITH: Correct.

MR. HARVEY: To address your concerns.

MR. SMITH: We ended up I think exactly where we should have been, and I think that was, again, one of the lessons learned.

MEMBER WALLIS: Well, taking them separately doesn't help. I mean, it's the water

that's the load, isn't it. It's the 19 inches of water that's the load. The snow is irrelevant. All the snow does is to block the drain. This is sort of Grand Gulf, you're going to get six inches of snow as the maximum. That weight is nothing compared with the weight of water you're talking about. The question is how do you treat all that water.

CHAIRMAN POWERS: See here the problem is that the conception was that the winter precipitation would be in snow. So he was forced to convert 19 inches of water in 24 hours into the equivalent amount of snow. It's a God awful amount of snow.

MR. SMITH: Right.

CHAIRMAN POWERS: But it would never occur.

MR. HARVEY: I don't think that was our intent, and hopefully the SRP will expand upon that.

MR. SMITH: Again, I think this is a lesson that we learned, and I'm just saying that, you know, if you - one of the things, you know, like I say, it was based on the 30-year-old branch technical position, it just took awhile to work through. I think we've resolved it, and it was one of the lessons learned that came out of this ESP process. So as long as it's clear now how you establish, and I think the

two separate conditions we ended up with is the appropriate answer to that. You have to deal with both of them.

MEMBER SIEBER: What about chi over Q?

MR. SMITH: Well again, we looked at χ/Q, and really I think this might even be, you know, particularly for an early site permit this was important because, you know, typically with χ/Q you look at exactly where the release points are going to be, and you measure the distance from there. You consider things like building lake effects, et cetera.

MEMBER WALLIS: I'm sorry, I'm going to go back to this snow load thing. I don't understand what you're doing here. Snow accumulates on roofs in cold climates unless you take it off. So how many snowstorms are you allowing to accumulate on the roof? There's all kinds of questions about snow load that seem to be sort of raised if you can simply take a hundred year snow load. Over How long a period of time? A whole month of snow, or what?

MR. HARVEY: Well, the hundred year snow load is I think by definition -

MEMBER WALLIS: By a winter of snow?

MR. HARVEY: No, it's the maximum amount of snow that you would expect to be on the ground at

any time over a hundred year period. So it may not be one storm. It may be a combination of several storms that would eventually to that snow.

MEMBER WALLIS: If you travel in a cold climate you may have five feet of snow, and then you've got rain, and a whole lot of rain. So anyway, I don't think you can leave this whole thing too iffy.

MR. HARVEY: Well, actually this may not be the designing parameter. I wish Guton was still here. But I think the probable maximum precipitation at the site is a much higher number, and that's what you need to design your roof for. And that's liquid water. So you need to show that the roof can be designed for that. And I think that's probably going to be a higher load in a lot of situations than the snow load.

MEMBER WALLIS: Chi over Q.

MR. SMITH: Okay, one of the things we looked at on χ/Q was to, especially for an early site permit, you know, you don't have a design chosen, or an exact location for the plant within your site. Basically you define an area in which the building would be located, and then you - what we thought was a conservative approach that says a release could occur at any point within that. So you take the

closest point from the corners of that to your site boundary, and you don't take any credit for building lake effects, et cetera. So that gives you a χ/Q that - and it turns out not to be actually that much conservatism to it, not a great deal, but it gives you a little bit more conservative χ/Q so that when you come up with that for your site, then regardless of the selection of the actual design, or the building locations, or the precise point in that building where the release might occur, you've got a bounding set of χ/Q's for your analyses.

MEMBER SIEBER: But that's only applicable when you're looking at the site boundary.

MR. SMITH: Correct.

MEMBER SIEBER: χ/Q within the site, for example, shielding the control room, or intake through ventilation ducts is an altogether different thing.

MR. SMITH: Altogether different thing and that's basically -

MEMBER SIEBER: Not affected by this.

MR. SMITH: Right, and that's basically - that necessarily is deferred until a COL, because you can't do that until you know the site's geometry of the structure. Correct. But for the off-site effects at the site boundary and beyond, I think you can use

this fairly simplified and conservative approach, and it really, as I say, it doesn't even add that much conservatism, but it makes life a little easier than trying to hypothesize, you know, various locations for the building before you know them. So I think it was a good approach to doing that analyses, and having it then carry over hopefully directly into the COL, so you can just say that's the χ/Q for the site for any plant that's located there.

CHAIRMAN POWERS: This next one, I am so happy you brought this next item up. It has escaped me, but this is one we need to discuss, and I'm grateful to get your opinions on this.

MEMBER SIEBER: Well, everybody knows that internet data is never wrong.

CHAIRMAN POWERS: But the difficulty is this. This is a problem, I mean an issue that's just going to become more and more pervasive as time goes on.

MR. SMITH: Yes. Again, there really is, just as we say, some guidance clarification here really would be helpful. You know, certainly we all use the internet all the time, and you know I think as you say, it's a source of a lot of very useful information. And you know, for many types of

information I think a reasonable documentation of exactly where and how you got the data and so forth is again, depending on what you're using it for, is probably okay. But you know, some guidance on when it's appropriate to use it, and when you have to go back and get certified data versus simply documenting where that internet data came from, really just to avoid confusion or later on finding out that you relied too much on the internet, et cetera, would be helpful.

CHAIRMAN POWERS: I can't endorse what you say more. There's got to be some sort of guidance on this because the internet's going - internet sources of data, the Google sources and things like that, are just going to become more and more important, and more used all the time. And the problem is retrievability. In 20 years, can I go back and get that same data set and look at it. And that's really up in the air. I just don't know the answer to that. I think it's a problem for the NRC period, not just the ESPS or the COLs or anything else. It's just a problem. It's got to be dealt with.

DR. PRESCOTT: This is Paul Prescott of the quality branch again. Yes, from a quality assurance standpoint we were very interested in this.

As a matter of fact it was one of the open items that we had on all three applicants. And we went to OGC and got an answer. And the answer, to be honest with you I didn't like the answer, but we had to live with the answer because we were pushing for guidance on this. Essentially the response came back from OGC that it's up to the staff to make the determination of whether or not they felt that the internet data that they got was adequate. We were looking more from, again, from a quality assurance standpoint that, you know, if it's going to be used for safety significant - potentially safety significant data or parameters for SSEs at a future date, that there be some kind of certification as what you would normally see for legal documents, for any data that's used in legal documents. And we were hoping more for guidance along those lines. But anyway, we did get guidance on that, and applied it as we could.

CHAIRMAN POWERS: Well, I mean it seems like you're only halfway there. Seems to me the Office of General Counsel has thrown the ball back into your court, and says, okay, you make the judgment, staff, you make the judgment, and they're inviting you to set up the criteria. And it seems like you've hit upon the issues there. Is that if I

get data over the internet, I'm going to use it in the future for something that's safety significant, I've got to be able to go look at that data again. It's got to be retrievable, and it's got to be reproducible, and it's got to be scrutable. I mean, it seems like they've just tossed the ball over to you to do something about it.

DR. PRESCOTT: Yes.

MEMBER SIEBER: I think another way to deal with that, though, is to treat it as though the internet wasn't there. Then you would be forced to go to the scientific library or standards institute or something like that to gather the data. That's when you use the internet, when you know what the source already is, and you know it's a reputable source and reputable data. Then you use the internet to capture the numerics of that I think is fine.

CHAIRMAN POWERS: Yes, but the problem is -

MEMBER SIEBER: Search for stuff, you can get good stuff and bad stuff.

CHAIRMAN POWERS: What you're talking about is correct now as we speak today. But there's this movement going on within the technical community that goes by various names, sometimes it's web

publication, sometimes it's called self-publication.

MEMBER SIEBER: Right.

CHAIRMAN POWERS: In which there's not going to be an archival source, but it's only going to be on the internet. That's the only place you will find these publications.

MR. HARVEY: Can I make a comment? Brad Harvey with the staff again. I know a case in at least climatology, if there are any references that I cited from the internet I put them in ADAMS. And so all my references, they were either publicly available in hard copy, or if it came off the internet there's a copy of what that webpage looked like within ADAMS.

CHAIRMAN POWERS: And that may be a useful way to approach the problem. The applicant can say, okay, I'll take this as I see it on the screen and do something with it that's archival in nature.

MR. SMITH: And that's generally what we did. It's just better guidance and understanding of that I think is - all I'm saying is we need to better understand as a technical community how we rely on the internet or don't, when we have to get certification. You know, it's one thing if it's safety significant. It's perhaps a little different if it's strictly for environmental. But in either case, you have to have

some assurance of the quality of the information.

MEMBER SIEBER: And hopefully every licensee will recognize that, because that's not clearly stated in the rules.

CHAIRMAN POWERS: And that's the problem.

MEMBER SIEBER: And that's something that needs to be addressed.

CHAIRMAN POWERS: This is an issue that just, you just have no idea. This movement on publishing only on the internet is getting to be very strong because of the cost and the delay of publications. The sponsoring agencies are not providing adequate funds to publish in the archival literature. The archival literature is getting very, very long lead times for doing things. And if it's useful information, it's the only information that exists, why shouldn't we use it? And eventually all journals are going to be electronic.

MEMBER SIEBER: Sooner or later.

CHAIRMAN POWERS: The reason that page charges are so high is it costs a lot of money to print things on dead trees. And whereas it costs very little to print. it on electrons. Interesting concept. And it's just going to grow and grow and grow. I mean, libraries are becoming things of the

past.

MEMBER SIEBER: They're becoming electronic.

CHAIRMAN POWERS: They're becoming electronic beasts. And therefore, hackable, changeable, destroyable.

MEMBER SIEBER: Yes, it disappears.

CHAIRMAN POWERS: Yes. Well, I mean the most insidious thing is to go in and change a few critical numbers and leave no footprint. Now what do you do? I mean, you could well imagine. Suppose you put a number you got from an internet site, somebody hacked in and changed those numbers and said you wrote down the wrong number. See, it's changed. Those are the kinds of issues that have to be addressed.

MR. SMITH: But Again, we just bring it up as something, and I think it applies more broadly than just early site permits.

CHAIRMAN POWERS: Yes, it is much broader, and I really appreciate you bringing it up. It's one that's just going to have to be addressed.

MEMBER SIEBER: And it goes far beyond this application.

CHAIRMAN POWERS: Yes. It's pervasive to all technical disciplines right now.

MR. SMITH: The final one I have down here is, again it's not per se the internet issue, but just sources of site information. An example of this was on that data we ended up going back and, you know, North Anna is located relatively close to Richmond, but there's another station at a higher elevation than North Anna. And one of the RAIs from the staff was to, well gee, if you're looking at, you know, maximum winter freezing that could occur, it's more conservative to base that on, you know, in other words North Anna is at elevation between that of Richmond and somewhere in Piedmont, probably a little closer to Richmond's elevation. But an RAI came in, well let's go look at this sediment data. Gives you a little more degree cooling days than Richmond. Okay, not an unreasonable thing to do, but you know, it would have been far better for us and the NRC if we could have agreed on that, and understood that before we did it, rather than, well gee, we based it on Richmond. Richmond is not conservative enough. Let's go look at another weather station.

MEMBER SIEBER: Yes, but you have your own towers there.

MR. SMITH: We do, but -

MEMBER SIEBER: Why not use your own data?

MR. SMITH: Because you're looking at a longer historical record. In other words, you know, we have only got those towers there for 30 years or so, and you know, you need, you know, the full U.S. MET station data set over as long of an historical, you know, a longer historical period. Like you say, there's changes and so forth that occur, and you don't want it too narrowly.

MEMBER SIEBER: But then the accuracy of that is important. You could go to the Richmond airport and get. They've probably been doing it there for 75 years.

MR. SMITH: Well, we did. And that's exactly where we went. But you know, Richmond airport is a few feet lower elevation, and you know, I would say -

MEMBER SIEBER: Three degrees, 1,000 feet.

MR. SMITH: Yes.

MEMBER SIEBER: All we have to do is apply.

MR. SMITH: We could probably have done that, but what the NRC asked us to do in fact was to look at another MET station that was a higher elevation than North Anna versus taking the Richmond data and making some adjustments. So there are

different ways that you could approach this, it would have just been, you know, obviously better on both parts if we could have, you know, understood better going in. And as I say, heading into a COL, I think that's even more important. So you know, if you're going to be developing a COL application, and you're going to be talking about, you know, what is your maximum winter degree cooling days if you will, I think you want to know in advance, you know, which MET station you want to use, or if you're going to use one that's a few feet lower than the site that you have, as you say, you make the three degrees per thousand adjustment and you're done. But I think that would all, you know, it would be more helpful if that kind of thing could be discussed and worked out ahead of the application being filed.

CHAIRMAN POWERS: This is well ahead. This is well ahead of the application being - I mean, it should precede doing an awful lot of work.

MR. SMITH: Yes. Right.

CHAIRMAN POWERS: I mean, what you're bringing up is we need a pre-pre-application phase where we can sort some of these things out is what you're saying.

MR. SMITH: Well, either that, or you know

like I say, have a little more -

CHAIRMAN POWERS: Some clarification, some way to find out.

MR. SMITH: Right. Some way of knowing before you go do this, you know, how do you make these adjustments, or you know, how do you bound it, how do you look at it.

CHAIRMAN POWERS: I think it's a terrific point.

MR. SMITH: Again, we agree that we came up with a reasonable approach, it would have just been probably better if it had been done earlier.

CHAIRMAN POWERS: Yes, but you can easily forecast coming up with an agreement that you'd done an unreasonable approach.

MR. SMITH: True.

CHAIRMAN POWERS: In which case it would have been a huge amount of work on everybody's part. I think it's a terrific point.

MR. SMITH: Okay.

CHAIRMAN POWERS: Any other questions posed here? I really appreciate these points. These were really great.

MR. SMITH: Thank you.

MEMBER SIEBER: Appreciate it.

CHAIRMAN POWERS: I think we can stop for a break here for - do we have a 15-minute break? Why don't we return at 3:15.

(Whereupon, the foregoing matter went off the record at 2:59 p.m. and went back on the record at 3:17 p.m.)

CHAIRMAN POWERS: We are going to continue our discussion of the lessons learned in the early site permit process. And George, you're going to continue us on?

MR. ZINKE: Yes, and I will, like Marvin, try to skip things that we've already talked about.

CHAIRMAN POWERS: Well, don't skip them - don't hesitate to put your particular spin on things.

MR. ZINKE: I thought it'd be beneficial on the - of how we looked at lessons learned relative to how we look at the early site permit and the project. And for Entergy we had specific purposes for doing an early site permit that then gets characterized into lessons learned that up front, you know, prior to the submittal in 2003, several years before that when we made the decision we recognized that the state of the licensing process at that point in time, which this many years later we may have forgotten what it really looked like then.

CHAIRMAN POWERS: Yes, sure.

MR. ZINKE: But that's - so our lessons learned are relative to that. And then some of the things that, you know, that was all inherent to the ESP project because we felt that anything that we would learn or develop or experience would be directly applicable to any other ESPS and to any COL that we would prepare. So we also wanted to capture all of the lessons learned for the pre-application, post-application, safety, environmental. And I understand, you know, if we're here we're only talking about the safety side, even though for us we ended up more lessons learned in environmental than we probably did in the safety.

CHAIRMAN POWERS: Yes, it's been a practice for the ACRS to focus mostly on the safety and less on the environmental. But we're not opposed to listening to what you might have learned, especially if you think we'd learn something from it.

MR. ZINKE: Yes, I might cross over a little bit into areas when I think it'd be beneficial to talk about it.

CHAIRMAN POWERS: Please do so.

MR. ZINKE: Entering into - in the next slide, entering into this process in preparing early

site permits we had certain expectations that again the lessons learned are focused around. Up front we wanted to have high quality submittals, and we recognized to have that we also wanted timely preparation of an application, which that presumed some things would exist that we recognized did not exist. We wanted to be able to have a fixed application content, that everybody would know exactly what goes into an application, and it doesn't change from application to application from year to year. We wanted to know what the NRC acceptance criteria for everything that we were going to put in the submittals would be. We wanted everything to be consistent with regulations, and everything focused on public health and safety. That was our expectations. We wanted to end up with a stable and predictable licensing process, and we expected to have some kind of reasonable schedule supportive of business needs.

So when you look at our lessons learned in the context of these things, you know the first one that I'll mention before I go to the next page in the last, you know, it's three years now, and we still don't have a permit. We are here today looking at lessons learned, but that's a major lesson learned for us of three years, no permit on a site that was

already approved to have another plant. And when you step back and look at that, and you defend that to your CEOs, it becomes real hard to defend of why does it take so long to approve something or say something's okay that years before everybody had already said was okay.

A number of the lessons learned we'll talk about. We call them lessons learned, but it was also things that we knew up front going into. So it wasn't surprises, it was things that we knew the situation existed, and unless you turn in an application, the situation will never change. So we get into some examples of what I call lessons learned, but in the NRC guidance documents RS-002 was developed by the NRC, and we appreciate that, and that's good. What we may forget is that by the time RS-002 came out our applications were already written. The only thing we were waiting for was the completion of the seismic. So you know, in hindsight had an RS-002 been out there our applications would have looked different. But it didn't look out, and we made a decision not to delay submittal by going back and trying to review and see where we needed to supplement. But, again, we knew that up front. But that still ends up a major lesson learned that I think that the staff has done much

better in the COL area. The same situation exists -

MEMBER WALLIS: Can I ask you there, you do make this application and then out comes the guidance.

MR. ZINKE: Actually the guidance came out before we submitted it.

MEMBER WALLIS: Do you find there's very much inconsistency, or was the guidance pretty well in line with what you expected? Presumably you didn't go back and revise it because you decided it was good enough.

MR. ZINKE: In history what we did, when we started the couple of years before the application went in, starting to prepare. We touched, you know, we got with the NRC -

MEMBER WALLIS: You had some verbal guidance.

MR. ZINKE: - had a lot of pre-application interactions. So we brought up with the NRC those areas that we thought we needed guidance, and we had good pre-application interactions that in one way substituted for not having the guidance. So we had some indications on certain technical areas. But there were some areas that we missed, and we didn't find out until after the RS-002. So it was a

substitute way of approaching it. And then we had prepared our application, we were waiting on seismic. RS-002 came out I think a few months before we actually submitted, and we didn't change anything during those few months and went ahead and submitted it.

MEMBER WALLIS: You didn't suffer because you didn't change anything?

MR. ZINKE: No.

MEMBER WALLIS: So the guidance was pretty well conforming to what you expected?

MR. ZINKE: Yes.

MEMBER WALLIS: Okay.

MR. ZINKE: So it's -

MEMBER SIEBER: They ended up with a cow instead of a horse. Right?

CHAIRMAN POWERS: Camel instead of a horse.

(Laughter)

MR. CESARE: George, this is Guy Cesare with Entergy and Enercon. The two issues I might add to that would be the RS-002 did not recognize the PPE approach, so that made it - there were issues that were dealt with in pre-application, like Part 100 does calculations that made it a little more challenging,

but the fact that RS-002 did not address it didn't really hurt us any. And the other was emergency planning, which we thought the day would be carried by 0654 Supp 2, and you've already talked about how that played out. So those were two places I think where RS-002 might have fallen a bit short, but we worked around it.

MR. ZINKE: But in one important way that this plays out then is that for our COL, which has the same situation that we need the guidance out there, the staff recognized that much earlier than for the early site permit, and has put a staggering amount of resources in working on that. Which is really good.

CHAIRMAN POWERS: To a certain extent I think the early site permit process snuck up on everybody that was kind of diverted off looking at license renewal. So, recognizing we're talking in time frames where decades are units of time measure, this was kind of an abrupt thing.

MR. ZINKE: That's right. And who would have thought that we'd be where we are today with so many companies interested.

CHAIRMAN POWERS: That's right. That's right. And in the face of this, again, I give you guys just all the credit in the world for having

produced such good applications in the face of uncertainty. Uncertainty. So you know, congratulations again.

MR. ZINKE: The other area in the NRC guidance documents that were, again, things we thought we would come across, we did, but didn't get changed for early site permit, but is being changed for COL is that there's a number of guidance that was only applicable during early siting efforts. And since no nuclear plants were built for so many years, kind of lay stagnant. And then there were some areas that were brand new on the other side for which some of the guidance was either out there or was untested like in the seismic area. So both of those presented challenges that the lesson learned out of that that's being implemented for the COL area is the reg guides are being looked at, the SRPs are being looked at, revisions coming out. So again, that's a lesson learned that will help the COL effort, but it was out of the ESP effort.

Quality assurance is, and the Part 21 that was mentioned earlier. This is an area that one lesson learned is that sometimes we talk past each other.

CHAIRMAN POWERS: Gee, I can't imagine

that ever happens.

MR. ZINKE: So both in the QA and the Part 21 area, this is still an area that we are tending to talk past each other that it has, part of the industry's problem with the QA and the Part 21 for early site permit was not so much a legal issue of is it applicable or not, but it was some practical problems of how do you do it, given some strange things about an early site permit being just siting things, and particularly an early site permit that's looking at parameters where you haven't specified a design. So when you carried that through in both QA and Part 21 space, the practical says, well, QA says you have a list of what your safety-related components are so that you can see their relationship throughout all these processes, and their relationship to the site. But if you don't have that it becomes much more difficult to implement certain aspects of a QA that you would - at least in a way that you would traditionally think about. Same way with the Part 21 that, you know, we understand the importance of the concept of Part 21 in reporting and looking for things that might affect safety, but the practical implementation of the Part 21, given the way the rule's actually written, you end up in a problem

because again you don't have a design, so what could affect safety isn't defined. You end up with a practical problem in implementation. So the solutions for this were the lessons learned still don't match the problem, because most of the solutions so far coming out have to do with the rule changes to make it applicable, both QA and Part 21, to the ESP processes, which doesn't address the practical problems of how do you make it work if all we do is just say, well now we're going to make this applicable. So we will continue to have conversations to try and come to some real resolution on how do we get to where we need to be.

CHAIRMAN POWERS: You really need some sort of guidance on how you do what's being required of you in an ESP context.

MR. ZINKE: Yes.

MEMBER SIEBER: Actually, there are some obvious applications of both Part 21 and QA. For example, the safety of the plant relies in one aspect on its seismic design. Part of site characterization is things like doing bore holes, and analyzing the subsurface, and obviously that's a product that's subject to defects, and should be subject to QA, and should be reportable if you make a mistake. And so

the aspects of the ESP that formulate how you're going to design the safety-related portions of the plant to me are pretty clear.

MR. ZINKE: And there are parts of the ESP that are much clearer in that area than some other parts.

MEMBER SIEBER: Yes, there's, you know, counting the trees and that kind of stuff is different.

MR. ZINKE: Emergency preparedness, I think we talked about that. We don't really have anything more to add. We took the minimal approach which was a balance between trying to figure out what things in the emergency preparedness area that we thought we would have to do over again, even if there was some finality associated with it. So it was a struggle for us to figure out, well, we didn't just want to put things in the application for bigness' sake if we thought we were going to have do them over again. And that was the major feature. That was our struggle with, well what is a major feature. And we understood the staff's - after we submitted and had a lot of discussions, we determined what the staff's definition of major features were.

The real lesson learned or the, I don't

know if the benefit that we saw coming out of the early site permit was working with the staff in developing what a full and integrated plan submittal would look like.

CHAIRMAN POWERS: Oh, I see.

MR. ZINKE: Because what came out of that was something that looked like to us might have actually, had we had that two years earlier, that knowledge, we might have gone that way instead, because it was things that - the reasons we had for not going that way were things that the staff had figured out, well those would be ITACs, and we said well we had decided we won't go that way because this is information we wouldn't have. So again, it was one of those things -

MEMBER WALLIS: So you already have a plant there?

MR. ZINKE: We already have a plant there, yes.

MEMBER WALLIS: You already have emergency preparedness.

MR. ZINKE: Yes.

MEMBER WALLIS: What needs to be added for this?

MEMBER SIEBER: Well, there are things

that are different. For example, part of your EPP is a classification scheme. That depends on the plant design. On the other hand, you know, the warning, what you do at unusual event site area, alert and general is the same regardless of what the plant is. And the warning system is the same.

MEMBER WALLIS: Right.

MEMBER SIEBER: And so a lot of it is need not be repeated, but perhaps referenced. But there are some parts of it that are plant-specific.

MR. ZINKE: Some of the things that we struggled with that led to our decision not to go that way prior to any discussions with the staff about what a way of doing it were the pieces of the emergency preparedness that deal with the off-site, the state agencies and the local agencies, their emergency plans. Because we didn't want to try to initiate them in revising their plans when we hadn't even made a decision to build yet. And so trying to think that through, you know, three years ago, four years ago, led us to try to go through the major features.

MEMBER SIEBER: But their plan won't change.

MR. ZINKE: Yes, it will.

CHAIRMAN POWERS: It would have to.

MEMBER SIEBER: Why?

MR. ZINKE: Because their plans are specific to have things like phone numbers of who they would contact, the organization, the plant names. There are things about their plants that won't change, but there are things that actually will change in the plans.

MEMBER SIEBER: You probably already have a provision to update the phone numbers and that kind of stuff on a regular basis?

MR. ZINKE: For? In our case, dealing with Mississippi and Louisiana, getting changes to those plans, even minute, is ....

MEMBER SIEBER: A challenge.

MR. ZINKE: Is a real challenge, and we -

MEMBER WALLIS: But you can't do that now, so.

MR. ZINKE: Right.

MEMBER WALLIS: Why worry about it?

MR. ZINKE: But that was why we went down the road we did.

CHAIRMAN POWERS: Yes, okay.

MEMBER SIEBER: I'm still struggling a little bit over this, and I've had an offer of some clarification here.

MR. BARSS: Thank you. Dan Barss again, senior emergency preparedness specialist. I wanted to make sure that you the subcommittee understood the staff's, I guess, position on understanding the first three ESPS and where we're heading in the rulemaking that's been put forward and the guidance that we're developing now. Two years ago we looked at the regulations as written and RS-002 which led us to Supplement 2, and basically if I could draw a mental bar chart, if you came in and took NUREG-0654 which lays out the 16 planning standards and expands I think to 190-some criteria, line items criteria. If you came in with 20 percent of them and said we want major features, and here's 20 percent of the information you need. And if another applicant came in with 40 percent, and another one came in with 60 percent, and another came in with 80 percent, okay, all asking for a major features plan, each describing a different amount of information or different criteria, the staff's position was that Supplement 2 set a line that said you had to meet this let's say it was 45 percent. If you came in with 40 percent, you didn't meet that bar, you couldn't get that major feature. If you came in with 80 percent, you had excess, which we really didn't care about because it was more than we could

provide because we were only looking at a description of the plants at that point as we understood Supplement 2 at that point in time.

The lessons we've learned is that you can come in with 20 percent, or you can come in with 80 percent and get a major feature, either with 20 percent or 80 percent. You'll get a different part of the major feature, or different things you're describing. So there is a continuum that could be allowed. The staff's view of the 45 percent was I guess in hindsight we believe it was the right thing from the guidance and the regulation as written, but going forward we don't think it's the right thing. We think there is a broadened spectrum that the applicant should be able to address. And that's what we've attempted to address in the rulemaking that's gone forward, and the guidance needs to be revised to recognize that, that an applicant could come in and say, you know, take the 16 planks. I want to address Number 2 and Number 14, and that's the only ones I want to get, we could do that. Somebody else could come in and say I want everything but Number 14, and I'm going to give you all the information you need now, or Number 4, which is the EAL it's the classification.

MEMBER WALLIS: When he has an existing plant, doesn't he have 40 percent already or more?

MR. BARSS: Potentially, yes.

MEMBER SIEBER: But he has to give it to them.

MR. BARSS: Yes.

MEMBER SIEBER: Or they didn't give him credit for extra credit, or do give extra credit, it's either pass or flunk. Now they're giving extra credit.

CHAIRMAN POWERS: But I'm still - it seems to me that at the ESP stage you really honestly want to know is there any major impediment to creating an emergency plan. At the minimalist level, is there any major impediment. In other words, is there some reason to think that I can't set up an emergency preparedness zone. Is there some reason to think that I cannot get the state to cooperate with me. Is there some reason to think that emergency evacuation times are going to be heroic. That's really what you want to know.

MR. BARSS: And that's what 52.17(b)(1), that's the minimum to get an early site permit. And that does not invoke 52.17(b)(2)(I) or (2)(ii) which are the major features or the complete and integrated

plan. That's where the applicant has the option. You can just submit an early site permit, and you can do as you said, show there's no significant impediments and that the state and locals have agreed to play with us and to develop the emergency plans. With that information, you can get an early site permit. The only thing you're getting at that point in time is approval from us that there's no significant impediments. But there is no planning done at that point in time.

CHAIRMAN POWERS: Yes, and that may well be what I want. I mean, I can see.

MR. BARSS: That you can get. There's no planning developed, but you can get that. But then what is left to the applicant to choose is if you want the major features or the complete and integrated plan, you can invest the time and the money and the resources to say here's the plans that I think I can implement. And if you think you have enough to give us the complete and integrated, you can go that route and get the reasonable assurance based on that, or you can give me what pieces and parts you think you now have and get that. If you came in and say you excluded the Criteria Number 4, which is the emergency classification, you could get major features on

everything else, but you couldn't get classification schemes if you didn't know what you're EALs are going to look like today. And if that's the case, you could get major features approval for pretty much all of that stuff, but you could not get a complete and integrated plan until you provide me the last piece, which would be the EALs or the classification scheme that the state agrees to and we agree to as being complete.

CHAIRMAN POWERS: To the extent you wanted to clarify things for me you've succeeded.

MR. BARSS: Okay, good.

CHAIRMAN POWERS: George?

MR. ZINKE: The next problem we had lessons learned was electronic submittals. And that was just extremely difficult. We're still working with the staff to try to come up with how to electronically submit. And hopefully by the time we get -

CHAIRMAN POWERS: You're not alone. I have tried to electronically submit things to this organization and find that it defies my ability anyway.

MEMBER WALLIS: Getting anything sent back to you.

MEMBER SIEBER: Yes, that's where the problem is.

MR. ZINKE: Yes. Or calling and saying they can't accept this, and pre-flight compatibility problems, and Acrobat versions, and a lot of lessons learned in that area.

CHAIRMAN POWERS: Well, in fairness to people that operate computer systems here, I think this file transfer protocols and whatnot just haven't been stabilized very much.

MEMBER SIEBER: Well, they've stabilized on the wrong stuff.

CHAIRMAN POWERS: Maybe that's the answer is that we're stabilizing on BetaMax instead of Sony or something like that.

MR. ZINKE: So, the major lesson learned out of that is we just have to continue to work real close to the staff. Because it certainly isn't a simple process yet. But it's - improvements are being made.

Next item, a permit template. Our vision of what was going to occur and what has occurred is different. We felt that a draft of what the actual permit looks like should have come to the ACRS, should have come to the ASOB, should have kind of accompanied

the final SER and the final EIS, and we still don't know what the actual permit's going to look like. We just - that just -

MEMBER WALLIS: Isn't it just a little card with your picture on it which says you now have a permit?

(Laughter)

MEMBER SIEBER: Can't drive at night without an adult present or something?

MR. ZINKE: And that's, you know, having lived with what the exact words that come with a license, an operating license, we felt that's an important - what the actual words that go into the permit really are kind of fundamental, and we just believe the process as it exists today.

MEMBER SIEBER: You still don't know, do you?

MR. ZINKE: No, we don't know.

MEMBER WALLIS: You'll know when you get it, right?

MR. ZINKE: Yes, and then because then that becomes important, the question you asked which is real good of well does this get incorporated by reference. What gets incorporated? We don't know. We don't know how the conditions, what are they going

to look. The lesson learned right now is that we just don't think is the way it ought to be.

CHAIRMAN POWERS: You must have a pretty good idea of the conditions.

MR. ZINKE: We think we do. Until you actually see how they're presented in the permit. We know the technical kinds of things.

CHAIRMAN POWERS: I mean, that's always going to be the case. Somebody's going to parse the language probably more deeply than it was ever intended to be parsed, and it's going to change a word here or there.

MR. ZINKE: We just felt, and we still do, that it's - if that's what you're going for.

MR. ARAGUAS: George, I want to chime in. I think you do have a pretty good representation as to what will go in the permit as far as terms and conditions. If you look at Appendix A to the FSERs you'll see there what the site characteristics staff has approved as well as the permit conditions that will go on the permit itself. So those you can count on, as well as the bounding PPEs that will go on the permit.

CHAIRMAN POWERS: I thought - I mean, in putting down my notes, I said, gee, I thought the

staff did a bang-up job making very clear what it's COL action items were, and its permit conditions were. I mean, they highlighted, they put them in the front, and things like that. The precise wording, I assume that goes through a concurrence process that changes things here and there, but the general area is pretty well specified. I mean, that's not going to change. It's going to be -

MR. ZINKE: I think we would have less consternation if there was one out there.

CHAIRMAN POWERS: Sure.

MR. ZINKE: Because then you could say well ours is going to kind of look like that.

CHAIRMAN POWERS: That's the problem of going first.

MR. GRANT: George, if I might jump in just a bit. Eddie Grant again with Exelon. The staff did a much better job on the safety side of identifying what the proposed permit conditions and action items are. One real concern is the environmental side. Environmental finality has been an ongoing continuing discussion that we still don't have the final result of. And again, as you said, the actual wording that might go there, is it going to be, as George indicated, the permit gets incorporated? Is

it incorporated by reference? Is it just referenced? Is it - there's much more detail and finality on how to deal with a DCD than there is with how to deal with an ESP. There's a good chance that some of that is going to be incorporated into the permit, and as George says, we don't know what it's going to say. So we're very concerned about that. We just don't know what we're getting.

CHAIRMAN POWERS: That may be a consequence of going first.

MR. ZINKE: And Eddie's right that on the safety side we have a much better idea. So this is one of those that is kind of outside your scope because it's really on the environmental side that is our most uncertainty.

CHAIRMAN POWERS: Yes, ACRS is - just as to keep our work scope practical has kind of avoided the environmental side because we don't purport to be environmental experts, and so we don't delve into that. I mean, I'm happy to note this down and communicate it to the Commission, but I can't say very much about it.

MR. ZINKE: We've talked some about plant parameter envelope. I didn't really have anything to add to that. Put down here ACRS review process. The

first time that we met with the ACRS subcommittee, we really did not know what you wanted us to present.

CHAIRMAN POWERS: Neither did we.

(Laughter)

MR. ZINKE: I learned as Entergy because I didn't have to be first. I got to come after you had met with North Anna and Dominion.

CHAIRMAN POWERS: Well, George, I hate to disappoint you, but you haven't learned anything, because if you came in the next time, it'd be different.

MR. ZINKE: It's lessons learned, so we give you feedback and you can take it or not take it.

CHAIRMAN POWERS: I mean, to the extent people are interested, the ACRS wants to hear what you think we ought to hear. And then we'll decide what we want to hear. But you did, by the way, in every case you were superb. We loved your presentations.

MEMBER WALLIS: Part of your job is to figure out what you need to tell us.

MR. ZINKE: Well, we did our best.

CHAIRMAN POWERS: And I think you did just great. And in fact, I would say just across the board everybody did great on their presentations. I had no complaints from any of the subcommittee members on

what was presented to the ACRS. The level of detail you went to was just about right, the scope was just about right, the quality of the presentations was, I mean, many of the members remarked on this, that it was just very good.

MR. ZINKE: But as a feedback, when we come before you with COL applications, it might be beneficial if -

CHAIRMAN POWERS: Ain't gonna happen.

MR. ZINKE: That we talk a little bit about what would you like to hear. Because I can assume we're going to be talking about something huge.

CHAIRMAN POWERS: You can always talk to the staff engineer, and he can give his best shot.

MEMBER KRESS: I guess I'll be interested in what deviations you might have from the certified design, and what action items were left to the COL stage, and if any ITACs, what were they. You know, it's that sort of thing. We don't want to go over the whole certified design again, we just want to know how you deviate from it.

MEMBER SIEBER: I think one of the issues you have to understand our review process, while you're trying to figure out what to tell us, we're trying to read the application and the SER, and we're

trying to figure out what to ask you. And the chances of that meeting -

CHAIRMAN POWERS: Is zero.

MEMBER SIEBER: - is zero, okay? And so everybody gets a different kind of a situation when they get here. On the other hand, the issues that jump out get covered.

MEMBER MAYNARD: Well, I think that by the very nature of our committee and our role, I think it's going to be somewhat undefined. In fact, I think we're wrong if we end up with a template where we're always asking the same things of the same people. I don't think that's consistent with our role. I believe that we do owe it to the applicants that if there's something specific we want them to address, we need to let them know ahead of time.

CHAIRMAN POWERS: And we usually do.

MEMBER MAYNARD: I do think we owe them that. But I think by the very nature of it it's not always going to be the same thing.

CHAIRMAN POWERS: Similarly, we can and often do ask for things that have nothing to do with the licensing process itself. I mean, we go beyond that because our job is to advise the Commission, and among that advice is things that they needed to worry

about that they're not worrying about, or things that they are worrying about that are a waste of time to worry about. Whatever it is, again, your judgment, your engineering judgment in this case was just superb. So fear not, I'm sure you'll do great on the COL as well.

MEMBER SIEBER: You'll do just as well.

MR. ZINKE: We will do better. And the last thing I just need to -

MR. CESARE: George, Guy Cesare. Dr. Powers, I first appeared before you in 1980 for the initial license in Grand Gulf. I think this is the first time this is going to happen. It's going to be a difficult evolution for the review. All the things you said certainly understand the nature of the committee. If I felt that we didn't get feedback timely enough, we could be better prepared I think, just looking ahead. We presented Chapter 2 of the FSAR to you. Now we have Chapter 1 through Chapter 19. It's a much broader scope. This item is give some thought to us working with the staff engineer two to three weeks, four weeks prior to on some treetop areas, and we'll always be open to those other interesting topics that you'll bring up that we didn't prepare for.

CHAIRMAN POWERS: Like I say, you should feel free to talk to the staff engineer. That's what he's there for.

MR. CESARE: It's a much broader scope, and hasn't been done in a long time.

CHAIRMAN POWERS: A long time.

MEMBER SIEBER: But the certified design process helps you quite a bit because we will have reviewed the generic design in quite a bit of detail. And we will not need to go into every nut and bolt of your specific plant design just those features that are either items that need to be closed, or differences between your plant and the standard design that was approved. I think the process should be more efficient even though it's not going to be short.

CHAIRMAN POWERS: I'm wondering, Jack, if that's really true. Because my recollection is I'm recalling a lot of the features of the APPLICANT-600 review, and I remember a lot of the thorny issues got moved to the ITACs.

MEMBER SIEBER: That's right. Like the important stuff.

CHAIRMAN POWERS: Yes, like the important stuff.

MR. CESARE: And it is that dialectic

between us, the applicant and the reactor vendor that, you know, what's final is final, and how we implement it. So there's some thinking that might be valuable to make that review most efficient, for our preparation at least.

MEMBER SIEBER: Well, you should pay attention to what your vendor says wasn't included in the certified design, because that's where a lot of the issues are going to be.

CHAIRMAN POWERS: They shifted an awful lot of things in the ITACs that - in many cases they get shifted because they were proving thorny in their presentation to us.

MR. ZINKE: The last thing I just wanted to, from Christian's presentation, just to correct for the record, on the analysis, the late analysis on the explosive hazards. I agree with your characterization. You know, sometimes we put things in the application, we'll write a lot, and sometimes we'll write a little. And this was an area where we wrote a little. The difference from what we said before that I need to correct is that in our application and in our original presentation we never said we meant the reg guide. I mean, that was up front from the beginning. And we really did

understand exactly what we presented and the background, but we made a decision not to answer questions based on the original submittal because of schedule. If the questions had come up early, and we could see that, well okay, we've got this much time, and it's going to impact schedule, we probably would have gone that way. But where the questions came in the ACRS process we had to make a decision of, well which is the quickest path to a resolution, and so we decided to go that way, rather than trying to explain what the original analysis was.

CHAIRMAN POWERS: Yes, well I'm kind of glad you didn't, that you chose what you did, because I liked that a lot better than I was going to like the original analysis.

MR. ARAGUAS: George, just to clarify my presentation, I didn't state that you guys were intended to meet Reg Guide 191. It was our assumption that you were attempting to meet 191. So I just want to clarify, we understand that you did not in fact submit under 191.

MR. ZINKE: Right. In either the original. And that's our overriding lessons learned.

CHAIRMAN POWERS: Well, they're good ones. They're good ones, every one of them. I still

struggle a little bit with the ACRS review process. In truth, the guys that have the biggest room to complain are probably Dominion because we got the application with three weeks to review. It was kind of panicked. But fortunately both the application and SER were very good, so it was easy for us to do, as was yours.

MR. ZINKE: Thank you.

CHAIRMAN POWERS: Any questions you'd like to pose to George?

MEMBER ARMIJO: I've got a question.

MR. ZINKE: Yes?

MEMBER ARMIJO: You said it's been three years into the process now.

MR. ZINKE: We submitted October of 2003.

MEMBER ARMIJO: What was your expectation for the time required to get the ESP? What do you think is a reasonable time?

MEMBER SIEBER: Three years. Say three years.

(Laughter)

MEMBER ARMIJO: You don't have it yet, right?

MR. ZINKE: No, we don't have it yet. We're hoping, you know, we may get it December, we may

get it January. So I mean, we're pretty close. I think there are people that are high level in my company that would see two years as a much better time frame than three or three and a half.

MEMBER ARMIJO: The fact that you're basically the first three applicants, or the icebreakers for the industry.

MR. ZINKE: No.

MEMBER ARMIJO: Do you think there's a built-in slow speed process here?

MR. ZINKE: I don't know the full reasons of why it's taken that long. The environmental was a lot more critical path than anything occurring on the safety side.

MEMBER WALLIS: How long is this ESP going to be? Is it going to be multiple pages, or is it going to be a very short document which says you meet these criteria and that's it? Or is it going to be humongous? How long is the ESP going to be?

MR. WEISMAN: I'm Bob Weisman, I'm from the Office of General Counsel, and we are putting together an ESP template. The staff is putting together.

MEMBER WALLIS: You're just putting it together now?

MR. WEISMAN: Yes.

MEMBER WALLIS: Okay.

MR. WEISMAN: So, I can't tell you how long any individual piece is going to be.

MEMBER WALLIS: You didn't do this before you started reviewing the applications?

MR. WEISMAN: No, sir.

MEMBER WALLIS: A little bit strange you didn't put down your expectations before you reviewed the applications. But okay. So now you're figuring out what it might look like.

MR. WEISMAN: Yes.

MEMBER WALLIS: Is it going to be a huge document, or is it short and sweet?

MR. WEISMAN: I would not expect it to be huge.

MEMBER WALLIS: Short and sweet?

MR. WEISMAN: I wouldn't expect it to be extremely short, but it will be a multi-page document. But I would estimate, if you want me to estimate, I will try and say somewhere between maybe eight and twenty pages.

MEMBER WALLIS: Well, that's good. That helps me. It's not hundreds of pages.

MR. WEISMAN: No, no.

MEMBER WALLIS: Good.

MR. WEISMAN: That's what I would guess. It depends on -

MEMBER WALLIS: Right.

MEMBER SIEBER: Kind of like your plant license.

MR. WEISMAN: Yes, about like it.

MEMBER SIEBER: Yes, ma'am.

MS. GILLES: This is Nan Gilles from the Division of New Reactor Licensing. Just one item of clarification. The staff actually did start to prepare an ESP template back before any of the applications were submitted, back when we were discussing generic ESP issues with the industry at large. And we did issue a template for the industry to look at, and they did comment on it, and we have revised it since then. So this isn't the first time we've attempted a template.

MEMBER SIEBER: Thank you.

CHAIRMAN POWERS: Thank you, George. Eddie?

MR. GRANT: Yes, sir.

CHAIRMAN POWERS: Well, I understand we're making you run pretty hard here.

MR. GRANT: Most of what I have to say has

already been said.

CHAIRMAN POWERS: The advantage of going last, huh?

MR. GRANT: Absolutely. What we would like to discuss is a theme of common understandings. We think that our beginnings did not start out with common understandings, and therein lies many of the difficulties that we encountered throughout, as we discussed already, some differences in understandings on the emergency planning, major features. And we probably won't go over those again, although they were on my list. But these common understandings are essential, as it says here, to the high quality applications, both with the early site permits and certainly continuing that forward. And we keep hearing that theme of high quality applications for the COL applications. So once again, those common understandings are going to come into play. We've learned quite a bit from the ESP towards getting common understandings as we move forward to COLs.

CHAIRMAN POWERS: The question that we'd really like to explore just a little bit as we have a chance here is has there been enough that somebody else coming in, either from your company or others, or your mega-organization or others, have we done enough

so that there would be something approaching or approachable of a common understanding? Or are there still places where the world's going like this?

MR. GRANT: There will always be places where the world is going like that.

CHAIRMAN POWERS: Yes, absolutely.

MR. GRANT: Speaking of organizations, I'm Eddie Grant with Exelon. And with me today is Chris Kerr, who is the senior project manager for our project development, who is now heading up the early site permits and our Exelon interface with New Start.

CHAIRMAN POWERS: To me, he's the guy we ask if he thinks a common understanding is emerging.

MR. GRANT: Well, you're certainly free to ask him all the questions.

(Laughter)

MR. GRANT: But, yes, I think we've moved a long ways towards common understandings on the COLs. As I said, all jokes aside, there will always be places where we think we have understandings and we're talking past one another, as George indicated earlier. But we're getting a long ways. We've got some jump-starts on the guidance getting revised. We've been working with the staff on a Reg Guide 170 replacement, the DG-1145 that's recently out. So it's out a full

year before the applications are expected. That's much better than RS-002, which was a few months before it was expected. As we indicated, also working on revisions to the SRPs. We haven't seen all those yet, but we expect to see most of those, at least the important ones, in early drafts sometime this year, with finals issued, again, at least six months before the applications so that those would be what we would need to address in accordance with the regulations. So yes, much improvement over what we saw during the early site permits.

However, I will go back, and as you pointed out earlier, part of the reason for that is that the early site permits were kind of an upstart, if you will. They came along pretty suddenly. And our purpose, as George indicated, was to implement the process, and to define the process, and to understand where the holes were, and where the difficulties lie. And in that respect I think we've been - we've had great success. I think that the ESP application that's out there now, Southern, ESPS should benefit greatly from the ground that we've been over. And they're talking about a much reduced review cycle for Southern's ESP. We hope that comes to fruition. Very much like to see it.

Another thing I would say there, Grand Gulf, of course, did not run into any spectacular problems I would say, as Exelon did by imposing a new seismic methodology.

CHAIRMAN POWERS: If I remember, their Mississippi River caused some consternation.

MR. GRANT: Right, right. With the design change on the cooling for North Anna. So North Anna and Exelon's Clinton station both had some fairly major changes, or differences, or new methodologies that were under review that impacted the schedule. Grand Gulf, not so much, and so we certainly would like to see the schedule that is taken for one where there were not significant impacts like that reduced. And we're looking forward to the Southern review.

CHAIRMAN POWERS: You guys had the burden of advancing a new seismic methodology.

MR. GRANT: Indeed, and I'll get into that a little bit more on the next slide. But we've already been discussing that these common understandings clearly are essential to maintaining the schedules. The NRC needs to be clear about their intentions, which we've talked about a lot here already with the guidance, getting out RS-002, and giving us that guidance before we submitted, but

frankly not much before, was not all that helpful, although we did have a number, as George indicated, a number of discussions in the year prior to the submittal of those applications where we worked out a great number of issues. And they worked quite well with us to help us make sure that we were much closer than we might have been had we just gone without any discussions. It would have been a real surprise for each of the applicants, I think had we not had any discussions with the staff.

CHAIRMAN POWERS: In a previous era, and maybe I reflect aging on my part. We heard lots about regulatory stability. Now we're seeing this phrase "common understanding" which is one that resonates a lot more with me than "regulatory stability." But I mean, I'm taking this as a take-home lesson. What the staff does to communicate, and not just to speak, but to really communicate so that he understands what both the applicant and he are trying to do is probably time well spent.

MR. GRANT: Absolutely. And the more they can tell us and the earlier they can tell us about what it is they are going to be looking for in this application.

CHAIRMAN POWERS: Similarly, I very much

appreciated what George had on his slide, where he said here's what our expectations were. I think hearing those words from the applicant helps the staff a lot. I mean, they may not be able to meet every one of those expectations, but knowing what they are, and saying, okay, tough luck on this one George, but the other three or four I can meet, is really very, very - strikes me as very useful.

MR. GRANT: Absolutely. And again, I have another one of those that I'll get into in the next slide.

CHAIRMAN POWERS: I mean, even just hearing your words that, gee, it's a lot more comfortable for me to present in front of the ACRS if I know what they're looking for. Yes, I heard you George. And we might spend some time on the front end thinking about that, because I mean I know many, many of us used to appear on that side of the table, and many, many of us knew that that was not the most comfortable place in the world.

MR. GRANT: Typically it's not. Today is a little more relaxed.

CHAIRMAN POWERS: Very well.

MEMBER WALLIS: If the staff is clear about what they want, and you're clear about what you

have to provide, the ACRS really doesn't have that much to do. I mean, if everything is clear about what has to be done -

MR. GRANT: We would have a great day.

MEMBER WALLIS: We may not be able to add much value. We're not going to raise some completely new issue. It would be unlikely.

CHAIRMAN POWERS: We're free to, though.

MEMBER WALLIS: We are free to do that. We can do anything we like, but I'm just saying, if it's really clear what you have to do, it may well be that we don't have that much to add.

MR. GRANT: And then this chair wouldn't be nearly as uncomfortable.

CHAIRMAN POWERS: Fun.

MR. GRANT: But it wouldn't be nearly as much fun.

CHAIRMAN POWERS: It wouldn't be as much of a growth experience.

MR. GRANT: All of the above.

CHAIRMAN POWERS: But I definitely hear your common understanding. I mean, everybody has repeated it here, and I think it's a good point. I think we just - I may end up advising the Commission we need to communicate to the ACRS as a whole that

talking on this, this common understanding, perhaps we could have the Commission say, look, in thinking about how you do your staff, time spent on developing common understandings is time well spent.

MR. GRANT: Absolutely. However, as you can see, there's another bullet there that says the applicant needs to be clear about his intentions as well, and that's a lessons learned for us. We did not give the staff much, if any, notice ahead of time that we were coming in with this new seismic methodology. Frankly, we didn't know we were coming with this new seismic methodology.

(Laughter)

MR. GRANT: Until about a month before we were scheduled, originally scheduled to come in. And we began to look at the results of the Reg Guide 1.165 method, and frankly just couldn't live with the results. We had to go find another methodology, implement it, and get it into the application in as quick a time as we possibly could in order to get anywhere near our schedule.

CHAIRMAN POWERS: But let's be clear that you did that without sacrificing any safety.

MR. GRANT: Absolutely. Absolutely. I mean, safety is always Number One. But we didn't give

the staff much warning of that. Frankly, I don't remember the details, and I would ask perhaps Mr. Munson remembers more about how much warning we gave him, since it was a direct impact on him. It wasn't much.

CHAIRMAN POWERS: I recall him panting as he raced in to make his presentation.

MR. MUNSON: There was no advance warning. In fact, we had meetings through NEI the summer before, and we specifically discussed seismic issues. And the words "performance-based" never came up.

MR. GRANT: Correct.

MR. MUNSON: And then we saw both North Anna and Exelon. Clinton had applied that new approach.

MR. GRANT: Again, and that's why this bullet is there. I mean, we need to let you know what we're planning to do, and in their defense we did not do as Exelon on that particular application. Again, we didn't know much ahead of time so we couldn't have given them much warning, but we could have once we figured out what we were doing as we began to do the calcs. Of course, we didn't know how they were going to come out either, but we could've given them a little advance warning and warned them. And we did

have, during that year ahead of time, we did discuss Reg Guide 1.165 many times, and in every case we told them that was what we were planning on doing. So.

MEMBER SIEBER: On the other hand, that went relatively smoothly, considering that it was a shot in the dark, and no warning.

MR. GRANT: Absolutely. Considering it delayed us about four months.

MR. MUNSON: Smoothly is how I would describe it.

MR. GRANT: I didn't see all the inside workings within the NRC during that time frame so I can't comment on how smoothly that went, but the results, considering the situation, came out quite well. We were quite pleased.

MEMBER SIEBER: And Marv, you pointed it seemed to go well, and that's because we didn't know what was going on in your shop.

MR. GRANT: Most of these examples have been discussed in one way or another. A couple of points that I would make generally with regard to this is that if we had not had those discussions that we referred to over the year's time prior to the applications, we would have - one of our expectations might have been that we could come in using the site

characteristics that had been identified for the site as it sits today for the operating plant that's there, and that we would expect the staff to approve those again for the site permit. Clearly that was way off base. But had we not had those discussions, that might have been an expectation. We learned that during our pre-application discussions, and came to a common understanding for the most part on how that was going to work, and what could work, and what wouldn't work in that area. At Exelon, because we had written the application using a good deal of that information, it still came in that way, and we saws that in the number of RAIs in certain areas. And so that's a lessons learned I think, that not only we learned but hopefully all the rest of the industry learned. That yes, that's there, but as Mr. Barss pointed out earlier, it's a separate application, it's a separate review, it's a separate.

CHAIRMAN POWERS: It was done in a different era.

MR. GRANT: Absolutely.

CHAIRMAN POWERS: Everything's different.

MR. GRANT: Updated guidance that needs to be considered. And again, had we just come in from Day One, we would have been way off base.

CHAIRMAN POWERS: A COLed application probably wouldn't work.

MR. GRANT: Would not have. In fact, probably would have been rejected from the beginning. We did talk about the plant parameter envelope. Again, that was new. The guidance really didn't address that. You've heard all that already. One specific point I guess that I would point out there that we didn't understand really well. We did come to a common understanding that the staff needed a specific rad consequence analysis, radiological consequence analysis using the site χ/Q parameters. We weren't quite sure we understood why. We believe that's a function of the regulations being written the way they are.

CHAIRMAN POWERS: You need to take my course on the history of the regulations, and then you would have understood this. It's a historical thing. It's because in the past they were - sites were all done piecemeal. And sites were getting rejected unexpectedly. That is, the applicant could not propose a site with a reasonable expectation that it would be accepted. Because there were not specific criteria. And so in response to that 10 C.F.R. Part 100 was written with some clear - so that there would

be clarity in what kinds of sites were unacceptable. And that leads to having a χ/Q dispersion analysis and whatnot. It is very much a historical thing, and it's very much responding to a complaint from industry of not having a common understanding of what was an acceptable site.

MR. GRANT: There we go again with the be careful what you ask for. Now we have this very clear understanding of the wording in Part 100, and it requires that we do this dose consequence analysis when in fact it seems to us that all we really would need to do at this stage is compare our χ/Q's with those that were assumed in the DCDs and that should be sufficient. But we can't do that because of the way the rules are written now. So one lessons learned is that perhaps Part 100 could be revised to simplify the process.

CHAIRMAN POWERS: If you've ever been through a revision of Part 100, you never want to do it twice.

MR. GRANT: Never want to do it again. Well, that's probably where we are. As far as the plant parameter envelope goes, another lessons learned is that if we would pick a single design, it certainly would be simpler. We could do that one analysis.

Probably if we had a specific design, and we said here are our χ/Q's it would be no problem. In fact, that's what we did in several cases using several designs under the ESP. We could do that dose consequence analysis. It would be easy to do and get through it real quickly. But using the plant parameter envelope, as we've discussed a number of times here before the committee, gives us much wider options for future plants.

Trying to look back through some of these and see which points. Seismic methodology we've talked about quite a bit already. There was no discussion earlier as Dominion was discussing the high frequency issue. And the staff has made very clear to us that that is not an ESP issue, and we understand their basis behind that. There was a statement, and I've forgotten now who said it, but they said that the high frequency issue would not result in redoing the designs that are certified designs. And I would caution that that might not be exactly correct. Because if we cannot figure out another way to come to an agreement that the high frequency doesn't impact that design, then yes indeed we may have to go back and redesign and consider that high frequency in the designs.

MEMBER WALLIS: What range of high frequencies are you considering?

MR. GRANT: Depends on the site.

MEMBER WALLIS: You can't go to extremely high frequencies.

MR. GRANT: Well, right now we carry the spectra out to 100 hz.

MEMBER WALLIS: That sounds pretty high.

MR. GRANT: And high frequency is generally anything over 10.

CHAIRMAN POWERS: It's 10 to 100 is the area of -

MR. GRANT: Of concern.

CHAIRMAN POWERS: It's the area we just have not dealt a lot with.

MR. GRANT: Correct. And doing the spectra the way that we do them now with the PSHA analysis. I guess that's redundant. But doing it with the PSHA gives us some high frequency content beyond 10 hz. It's not considered in the DCDs. Most of them at least are flat beyond 10 hz, using the Reg Guide 160 spectra.

Let's see, emergency planning. Again, here's a place where if we had not had early discussions we would have come in thinking the

emergency planning was going to be a slam dunk. We're just like them and everything would be great. Thanks to early discussions we recognized that that was not going to be the case. However, we were still surprised with the number of RAIs, and the details for major features reviews. All the discussions that have gone on before, I think that's well resolved. We understand where we are going to go in order to get maximum approval with the complete and integrated plans.

Oh, I would love to talk about QA for hours, but I'm going to forego that.

CHAIRMAN POWERS: Bless you.

MR. GRANT: One thing I would point out on the topic of internet data is that it depends a great deal on the source of that data. A lot of our data that we got off the internet came from state agencies or federal agencies, and we have high confidence in that data.

CHAIRMAN POWERS: Well, it's retrievable, because you can go to the state agency and they will have it. The problem is there are going to be, if not now, in the future, data that only is available on the internet. That's the only place it exists.

MR. GRANT: But again, still, if it's

coming from the National Weather Service, even if that's the only place it exists -

CHAIRMAN POWERS: It's retrievable.

MR. GRANT: It's retrievable, we will have a copy of it in our files.

MEMBER SIEBER: There's a permanent record.

MR. GRANT: Highly confident that it's good data. It's not from Joe's website over here who's been taking readings in his back yard. We're sharp enough not to use that kind of data without some kind of verification.

CHAIRMAN POWERS: What are you going to do, not you in particular, but what do you do if the professor of meteorology from Harvard University publishes his analyses and data on the web, and that's the only place? And of course, 20 years from now he gets hit by a car in the Harvard Yard, and the only place you can get it is off the web.

MR. GRANT: I'm not sure I see the problem. Other than, first of all, it depends on what the paper was about, and why we would have used it, and the purposes behind it. But typically that's not the kind of data that we're talking about. We're talking about massive databases full of weather data

and other things.

CHAIRMAN POWERS: In some cases, I can find you parts of the applications where there are three data points. And it's very common that we have very thin data on some things. And in the future, you're going to find lots of it that's only going to be on the web. And the problem is I go back and I look at the web and it's been defaced by some of our more adventurous colleagues in the electronic jungle. And so now I look what's in your application, I look what's no longer on the web, and I say why do I have any confidence in this. And how do you handle that? And people have talked about lots of ways of doing it. One is I record it, here it is, whatnot. I get somebody to notarize it and say, yes, this is definitely what was there, or any kind of thing like that I can imagine, but unless we have somebody set down this is what you need to do, the poor guy that comes along doesn't honestly know that he's done enough, too much. It's going to be a problem.

MR. GRANT: Well, with regard to that particular problem, when we do pull something off of the web, we keep a copy. It's electronic. So if it goes away from the web, or gets defaced on the web, we've still got a copy that says this is what was

there, this is the date we pulled it off, and this is where we got it. So we're confident that we have a backup piece of information for what we put in the application.

CHAIRMAN POWERS: I have no doubt that you did, but does everybody know to do that? Is that adequate?

MR. GRANT: Yes. If that was the concern, yes, I think that was adequately addressed. Part of the concern that we saw from the QA RAIs on that was, again, as Mr. Prescott indicated, was some kind of certification of the data. And again, if we were pulling it from the National Weather Service or from the state agency, we did not see that that was a necessary step to take and still don't.

MEMBER SIEBER: I guess the biggest problem with electronic publishing is if somebody writes a scientific paper and publishes it on the web and not through a publishing company or a standards committee or an engineering society or what have you, you don't have all the elements of peer review and all that other stuff that gives authenticity to that. So I'd be cautious about using things that don't go through the rigor of the regular publishing process.

CHAIRMAN POWERS: You're going to have to

address that because that - the peer review process, (a) is breaking down.

MEMBER SIEBER: Yes, it is.

CHAIRMAN POWERS: Its defects have always existed. I mean, it's held in greater esteem than it ever deserves.

MR. GRANT: One of the areas where that might come into play, because we do depend on a large number of papers and discussion and methods and sources, is the seismic area. But as we've discussed previously, we have the Shack methodology where all of those sources are peer reviewed and assigned weights and considered in the analysis in that manner so that we have some safeguards in that particular area through that methodology.

MS. HERRICK: I'd like to make a comment. Dayna Herrick from Duke Energy. I just want to comment on the use of internet data. You're right, we do need to have some consideration of standards because this information is being used now at operating plants. So this is bigger than ESP COL, especially in the area of security. Some of the B.5.b stuff, where there's not a lot of published information that may have come through, you know, the military. But given the inability to tie it back

through conventional sort of QA processes the way it's being treated now is just it becomes part of the reference material that you use to justify your engineering judgment and the assumptions that you're making.

CHAIRMAN POWERS: My only point is that if we take this limited view now, it's going to become such a pervasive aspect of the scientific engineering method in the future that that limited view is no longer going to be viable. It's going to be a much more integral part of the way we do engineering analyses in the future. It's just going to grow. And it's going to be an interesting challenge.

MR. ZINKE: And Eddie, if I could interrupt on the internet data. This is George Zinke. A term to be careful of using is "retrievable" because we found that even particularly when you're going to the databases for the national organizations where you had some assurance of integrity, but the way you gathered the data from the internet is you create a query. And so it is manipulating data to give you the answers. And anybody that goes in one minute after you do and puts in the same parameters and runs a query will not get identically what you put in. So for us, retrievable was you had to take a picture of

what you got because it's not retrievable ever again from that source in exactly the same way. It's just, it's the nature of the internet stuff.

CHAIRMAN POWERS: It's interesting.

MR. GRANT: It is indeed. Electronic submittals. One point I guess I would make that some of the others before me did not make is that perhaps this is an area where we've taken a step backwards and unlearned a lesson. If you make today a paper application, then your amendments later on can be on a page replacement basis. I understand that that would be difficult to do in an electronic submittal. However, the staff apparently cannot even make file replacements. And where an application has a hundred 50 mg files it seems unreasonable that you should have to resubmit all 50 or all hundred 50 mg files when only one changed. So a lesson unlearned there perhaps.

ASLB hearings process. This is very similar, I think, to what we've gone through as George indicated on ACRS. We've got a new Part 2 out there, and we're still trying to figure out exactly where that's going to go. We're just beginning our hearings. Actual hearings process is – well, that's probably an inaccurate way to put it, but the

hearings, the actual hearings themselves will begin soon. And we'll see where that goes.

Permanent content we've certainly talked about. This is one place where we remain concerned about the lessons. It is our ultimate goal, and frankly we don't know yet what it looks like. And that, at this stage, after three years, seems untenable.

MEMBER WALLIS: What I'm curious about is when it's all finished, when you've got your permit, what have you really gained?

MR. GRANT: Well, it depends on what the permit says.

MEMBER WALLIS: Right, yes.

MR. GRANT: Absolutely. That's the point exactly.

MEMBER SIEBER: That may be your lesson learned.

MR. GRANT: It might be, frankly.

MEMBER WALLIS: Probably was -

MR. GRANT: - before we know the final results of these lessons, and whether or not we've used this process to its fullest extent. With that I'd say thank you for your time and this opportunity to present, and thank you for your praise of the

quality of the applications, and the staff's work as well.

MEMBER SIEBER: Your work and their work.

CHAIRMAN POWERS: Any questions to pose to Eddie? I think you've given us things to think about here. I didn't want that, it makes my head hurt. But these are useful things for us to know about.

MEMBER WALLIS: What do we now with the full committee on this?

CHAIRMAN POWERS: Well, I was first going to ask the subcommittee what they thought about what we've heard about. My proposal for the full committee is that certainly have Chris make almost the same presentation to us, supplemented only by anything that he thinks he's learned here in the meeting itself, what he needs to augment, augment or decrement what you said. And then to try to summarize, that I would try to summarize what I've heard from the applicants, who are certainly invited to attend, and if they want to make a presentation I'm sure there's time on the schedule. But otherwise, I was just going to try to summarize anything that wasn't covered by Chris. That's my proposal, but I can always be redirected.

Bill, any comments?

MEMBER SHACK: I did have one question for

the staff. It's somewhat unrelated, but it's sort of related, and that is, you know, one of the things that we did was to come up with - I mean, one of the big differences were the differences in seismic hazards we were seeing in the Midwest. Have you decided how those are going to affect current operating plants yet?

MR. ARAGUAS: Unfortunately Cliff just took off about five minutes ago.

CHAIRMAN POWERS: He is one smart cookie, isn't he?

(Laughter)

CHAIRMAN POWERS: They do have a proposed generic safety issue, or generic issue 199 that is still under review? That's as far as I could carry it.

MR. ARAGUAS: That's as far as it's gone at this point.

CHAIRMAN POWERS: Yes, and I think that's where it's going to stay for awhile.

MEMBER SIEBER: Well, didn't they have one big seismic backfit a number of years back? In like 1980?

MEMBER SHACK: Oh yes, the seismic backfits.

MEMBER SIEBER: I remember something like 700 design changes coming out of that.

CHAIRMAN POWERS: Graham?

MEMBER WALLIS: I think it's been a very useful discussion. All kinds of things have come out. I think that the difficulty is going to be how to distill it down to something which is sort of really - the pointed lessons learned. The takeaways from this.

CHAIRMAN POWERS: I am wrestling with that. And to the extent you can pass me notes on what you think the letter ought to look like I'd surely appreciate it, because my notes have exceeded my capacity to distill right now. But I very much appreciated the applicants' point of view, because there were several things that I just didn't think about that are weighing heavily in my mind. But this general idea of a common understanding seems to be a very good theme that has implications in the COL. And it seems like it's a lesson that the staff has in fact learned, just based on what they're trying to do on the COL. So I don't think it's going to come as any shock to anybody.

Similarly, I see this internet issue as one that's more pervasive, that in the long-range thinking the agency, they've just got to handle, got

to decide how to handle this and provide some guidance on it. I serve on a committee kind of titled the Library of the Future. And I see in that committee that the whole idea of how scientific and engineering information is published is going through a change that's going to be fairly radical. One of the things that's happening of course is that library budgets, and this is true across the nation, are flat. And that means the amount of archival information libraries can acquire is going down, that publishing organizations are - their prices are going up, budgets are flat. Similarly, I see investigators being less having pure resources to avail themselves of archival publications, so they're getting very excited about this internet, sometimes called electronic publishing, sometimes called self-publication and whatnot. I see major, major questions being asked about the peer review process, and whether it actually assures the kind of quality that we think it does versus this interactive, putting it on the electronic medium and let undesignated reviewers comment on it as being far more effective than a designated reviewer. There are lots of things happening, and it hasn't sorted itself out, and it will never sort itself out because it will continue to evolve.

MEMBER WALLIS: How do you keep the garbage out is going to be a problem.

CHAIRMAN POWERS: Well, you don't now. So you're going to have lots and lots of - we're going to allow the garbage to proliferate, and rely on some other process to filter it. Because even now you don't keep the garbage out of literature. I mean, it's a myth that the peer review process keeps garbage out of literature. Tom?

MEMBER KRESS: Well, I was thinking about your letter and what its objective and purpose might be. For example, the lessons learned on early site permits are already lessons learned. I mean, it doesn't do much good to say this is lessons for people on the early site permit. So I was trying to think of where these lessons learned might have additional applications. And certainly at the COL stage there's something that could feed into that. It seems to me like there's something to feed into the reg guides and the standard review plans that they're modifying and redoing. And you know, I think there's something we might learn for our reviews. I'm not sure what, how we can apply it. Letting them know what we expect to hear is kind of a hard thing to do, but -

CHAIRMAN POWERS: I get the impression

George has given us some good advice, that we may not be able to specify exactly what we're going to want to hear, but to the extent we can communicate it, it's useful.

MEMBER KRESS: But I think there were some very general principles, like the communication problems and so forth that would apply to almost anything that's coming up later. And so I think if I were looking for the things to go in the letter, I would try to distill out those general principles.

MEMBER WALLIS: Well, it goes to who, an EDO?

MEMBER KRESS: I would think the EDO would be the right place.

CHAIRMAN POWERS: We might even write this one to file. I don't know.

MEMBER KRESS: Yes.

CHAIRMAN POWERS: Haven't thought about it.

MEMBER WALLIS: I think the Commission isn't really interested unless there's something that needs to be changed or something, are they? They just want to know things are going well.

CHAIRMAN POWERS: I haven't really thought about that, but it's very likely that the EDO, that

tends to be worthwhile. On the other hand, we do have a new Commission here, a relatively new Commission. It might be useful to communicate to them just if nothing else to acquaint them with the fact that this process is going on. And I think it's been well done. We might also communicate to them that after three years George still doesn't have his permit.

MEMBER WALLIS: We might slip that in.

MEMBER ARMIJO: You know, that is surprising, that the applicants really don't have a comfortable feeling of what it's going to be worth, what it's going to say and what it's going to be worth. But when the ESP was set up, there was a clear intention by the Commission what it would do. And somehow that's - people are confident that that early definition or goal is going to be met. And maybe we should reaffirm.

MEMBER KRESS: I think that'll iron itself out when the first permit gets on the table.

CHAIRMAN POWERS: I'm sure that that's the case. Once the first permit comes out. But Sam's correct too, that we need to make sure that that happens. Otto?

MEMBER MAYNARD: Just a couple of things. I'm not sure what if any of it's going to any type of

letter or anything. But I think the comment on the expectations for the ACRS meeting. I said that you're probably never going to get a template, and that's true, but I do think that the subcommittee chairman and the lead ACRS engineer should identify anything specific that they want covered in a meeting, and maybe any specific expertise that might be helpful to have at the meeting, and feed that back to the licensee before the meeting presentation.

CHAIRMAN POWERS: I'm clearly to be corrected on that. Over my history in the ACRS I think we've been pretty good about that, that when we've had very specific questions, that we've written down and sent them. I would also point out that my recollection is that every time we have done that the speakers have failed to address those questions. There's been a bit of a frustration on our part when we've done it, but I think we'll probably continue to do that.

MEMBER MAYNARD: I think licensees need to be aware. No matter how much is provided to them as expectations, any member at any time can ask something that may be totally unrelated to any of the other stuff.

MEMBER KRESS: And we often do.

MEMBER SIEBER: That's the fun of it.

CHAIRMAN POWERS: We have I think an outstanding history of allowing the response to be `I have to get back to you on that.' And I think we have a very good history of people coming back to us on that.

MEMBER MAYNARD: And also, one of the things in my short history that I've noticed is that there are times that the ACRS gets I would say out of bounds with what's part of the regulation. But then when it comes time after all the discussion they do take it back to, okay, what part of this is really required, and what part of this is something we're interested in, and bringing it back into focus.

CHAIRMAN POWERS: The ACRS has a responsibility to say what the regulations ought to be as opposed to what they actually are. And so that sometimes leads us into areas that I understand it frustrates the staff, it frustrates the applicants. They say that's not where you ought to be. But part of our job is to tell the Commission ought to be.

MEMBER MAYNARD: Changing just a little bit here. Length of time. This is something I think the staff needs to do a kind of an internal self-assessment. Not get back to us or anybody else, but

you know, three years seems to be a long review time to me. And we have a number of things potentially coming up with COLs and stuff that I think they really need to take a look. Personally, I'm a believer that a shorter review time will typically end up with a better product and better thought than a very extended review time. You forget what you've already reviewed and things, it's harder to manage. I would just take a look. Because again, I think most of these really should be lessons learned to be applied to the COL applications that will be coming in, and then some of the broader things, because I think that's where it's going to get even more complicated, many more topics and issues and reviews going on. So I would really encourage the staff to take a look at how they're managing these types of reviews, and are they really doing everything they can to program management through to get some more timely results there.

I do think electronic submittals, I agree that we probably have taken a step back, but the reality, that's coming. And I think the real key is the NRC and the industry need to work hard, you know, what do we need to do in defining electronic submittals, and get some of these things squared away. Same way with the internet data. And some of these

may not be perfect in the beginning, but like on the internet data, I think we need to, you know, start out with some criteria, and then it's something that we may have to revisit later or whatever. But I think it's just something somebody needs to sit down and do.

And again, I get back to most of these things we're talking about, I really take a look at the COL stage, which you're talking about many more diverse topics that's going to be reviewed and covered. I'd take a look at these from lessons learned for that, probably as much if not more so than for the ESP stage. That's all I've got.

CHAIRMAN POWERS: Jack?

MEMBER SIEBER: Somehow I see an analogy between ESP applications and reviews and operating plant site license renewal reviews. If you look at how lessons learned entered into that process, the way the staff handled it was to develop, as time went by, things like the GALL report, and develop various positions on various topics and so forth. And licensees also would watch one another, look at applications, try to copy out the things that worked, forget about the things that don't work, and the review process became more streamlined as it went along. I think that same kind of evolution could work

here, except I think by the time you get a streamlined process there will not be any more applications. And so I think that what we need to do is do more than the standard lessons learned recital. We have examples here. I think the applicants' presentations were great.

I also thought the applications for early site permits were good, and I think the review was done properly too. It just seemed like three years is too long for what you get out of the process. And it could have benefitted a lot by having a more defined process, a template. And by the time you get all this stuff put together that would help licensees, and by the time they learn and copy from one another so that they don't keep making the same mistakes, the whole process will be over. If I take three years for Chapter 2, the other 19 chapters would be 60 years, right? And no one here will be there to see a final license issued. And if we can't speed the process up, make it efficient, take advantage of the lessons learned, avoid licensees floundering around in things that they don't need to do, and concentrating on the things that they do need to do, I think we're all going to be a lot better off.

To me, this is a warning signal that when

you get to the COL stage, if we run the COL stage the way the ESP stage went or is going, we're in deep trouble. And if it takes that long, and it takes that amount of effort, and we have to find our way because of lack of pre-direction through the construction and operating license stage, we're in trouble. I don't think you license plants using this kind of process. So I encourage the staff and applicants, applicants have a responsibility too, to look at what's happening to their friends. You know, it's like penguins on the ice shelf. You push one over, if he swims away and has a good time it's good. If something eats him, you know not to do that, okay? And so you have to learn from one another, and the staff has to be pretty definitive and broadcast what it really wants. On the other hand, I think both the applications and the staff reviews were good. They were professional. And it's just the mechanics that really sort of bother me.

So I would encourage not to use the standard process of saying, well, I learned these three lessons, I'm going to fix them. I would be soul-searching right now to see what other lessons are really in there that nobody really talked about that much because they had these six important ones, and try to fix as many as we can, and be as definitive as

far as expectations and communication is concerned as we can be. So I'm not sure how you fashion that into words, but that really expresses my concern more than a plan of action for a letter or anything else. And I guess by just saying that the message goes, right? Oh, that's it.

CHAIRMAN POWERS: Thank you. Okay, the general plan I think is clear now for what we'll do for the full committee?

MEMBER WALLIS: I think the staff presentation needs to be a little shorter. It did take a long time. You're saying to include more things.

CHAIRMAN POWERS: That's because we don't - we discussed lots of things.

MEMBER WALLIS: Yes, I know.

MEMBER SIEBER: There should be enough of an understanding in the staff's presentation to make folks believe that they actually heard the applicants say something, okay? In other words, it's sort of a repeating kind of thing. You ought to say something about `Applicants had these problems, we're addressing them.' Or `This is what these problems are, and here's possible ways of addressing it.' For example, the emergency planning.

CHAIRMAN POWERS: So you'll be doing some heavy lifting for the committee to the extent -

MR. ARAGUAS: Between now and 10:30?

MEMBER SIEBER: I'm here to help you.

MR. ARAGUAS: Between now and 10:30, right? Tomorrow's the -

CHAIRMAN POWERS: Is that the time?

MEMBER WALLIS: If you're at 10:30 the committee will want to go to lunch, so you can't -

CHAIRMAN POWERS: Okay. So you've got - you do not need to feel an obligation to fill that entire time, because I have to take a little while to summarize things.

MEMBER SIEBER: Well, he's got 17 hours to prepare.

CHAIRMAN POWERS: I don't know that you need to do a lot to your presentation. It was, you know, it was kind of the level that I would expect at an ACRS. I mean, we interrogated you at depth and went wandering off when you presented it. That won't happen.

MR. ARAGUAS: Right. I mean, I could probably get through it in about 15 minutes without questions, but I'm sure you'll have some follow-up.

CHAIRMAN POWERS: I think it's - I think

if you augment it with a page on what says what you've heard.

MR. ARAGUAS: So if I just do the same presentation, and like you said, add on to what we're thinking about doing in terms of what industry has provided. To the extent that's possible between now and 10:30.

CHAIRMAN POWERS: Yes. I mean, I don't expect you to redesign the whole program.

MEMBER SIEBER: That would do it.

MR. ARAGUAS: Okay.

CHAIRMAN POWERS: It would be fair to say `And we heard these points from the industry, and we're wrestling with them.'

MR. ARAGUAS: Okay.

CHAIRMAN POWERS: That's acceptable for this. I don't expect you to design a whole program here.

MEMBER SIEBER: But maybe by Friday.

CHAIRMAN POWERS: Monday morning's plenty early enough.

MEMBER SIEBER: Slacking off.

CHAIRMAN POWERS: But the general level and whatnot of your presentation was just fine.

MR. ARAGUAS: Okay.

CHAIRMAN POWERS: Any other comments members would like to make? Seeing none, I thank everybody very much. I really very much appreciated all that you had to say, and I appreciated the thought that went into it, same with the staff. And with that I'll adjourn this meeting.

(Whereupon, the foregoing matter went off the record at 4:55 p.m.)