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NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS**

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

AUGUST 9, 2000

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

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 ***

4 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

5 ***

6 THERMAL-HYDRAULIC PHENOMENA SUBCOMMITTEE MEETING

7 SIEMENS S-RELAP5 CODE FOR

8 APPENDIX K SBLOCA ANALYSIS

9 ***

10 Open Session

11 ***

12 Nuclear Regulatory Commission

13 Room T2-B3

14 Two White Flint North

15 11545 Rockville Pike

16 Rockville, Maryland

17
18 Wednesday, August 9, 2000

19
20 The above-entitled proceedings commenced at 11:32
21 a.m., pursuant to notice, the HONORABLE GRAHAM WALLIS,
22 Chairman, presiding.
23
24
25

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1 ACRS COMMITTEE:

2

3 DR. GRAHAM WALLIS

4 DR. DANA POWERS

5 DR. THOMAS KRESS

6 DR. ROBERT SEALE

7

8

9 APPEARANCES:

10

11 DR. NOVAK ZUBER

12 MR. PAUL BOEHNERT

13 MR. JERRY HOLM

14 MR. LARRY O'DELL

15 MR. KEN CARLSON

16 MR. JOE KELLY

17 MR. R. LANDRY

18 DR. CHOW

19 MR. KEN GREENE

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21

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23

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25

OPEN SESSION

[11:32 a.m.]

1
2
3 MR. LANDRY: My name is Ralph Landry, I am NRR
4 staff. I would like to update the committee on the plans
5 that we have for the review of Siemens S-RELAP5 and what our
6 schedule is. I would like to talk briefly this morning
7 about the approach we are taking to the review and who is
8 doing this review. We have some different people involved
9 in it than the Gang of 4 that we have had in the past, and
10 talk a little bit about our schedule.

11 You are all familiar with the documents which we
12 have received.

13 CHAIRMAN WALLIS: Ralph, to clarify, you are just
14 reviewing the small break LOCA evaluation model?

15 MR. LANDRY: Yes, I was just going to get into
16 that.

17 Now, from the documents which you have been
18 looking at, and which we have been reviewing, from the
19 models and numerics document, even though Siemens has said
20 this applies to the S-RELAP5 code, we are reviewing it with
21 respect small break LOCA Appendix K application at this
22 point, plus we are then going to extend that review into the
23 application to selected Chapter 15 transients.

24 We are looking at the input requirements document
25 so that we can set up some models and run the code. We have

1 received the code from Siemens, we have installed it. We
2 are preparing to run the code ourselves as we have done in
3 the last code review that we have talked to you about. We
4 are looking at it from, as I said, PWR small break LOCA
5 evaluation model, or Appendix K, whichever terminology you
6 would care to use.

7 In this review we set out initially to say that
8 the emphasis would be placed on the models and correlations
9 that are different than those in RELAP5 Mod 2 and RELAP5 Mod
10 3. We have a long history of involvement with RELAP5 as a
11 code. We are quite familiar with what is in the code. This
12 code has had a great deal of modification made over RELAP5
13 Mod 2, bringing in some of the Mod 3 models, plus some other
14 models which are neither in Mod 2 nor in Mod 3. So we
15 started out with the intent of emphasizing those models and
16 correlations which are different than any of those we have
17 looked at before.

18 From the initial work we also are expanding that
19 review to look at some of the other material that has been
20 presented today and other material that is in the code.
21 Based on our involvement in another code review, we felt
22 that looking at only what is different is not adequate, we
23 have to look at other material also.

24 CHAIRMAN WALLIS: How does this relate to the
25 documentation issue? We read this big document, we didn't

1 really question every part of it. We questioned several
2 parts of it. And then we had a presentation from Joe Kelly
3 which was quite -- in some ways quite different from the
4 document. Now, are you actually reviewing sort of the basis
5 there? This is like the basic equations and all that again,
6 or is that not what you are reviewing?

7 MR. LANDRY: Well, we are looking at some of the
8 basic equations again. One of the suggestions that we have
9 made to Siemens is that they place this material from
10 yesterday and today on the docket itself. Normally, when we
11 receive material for review, it is what is officially on the
12 docket. Presentations that are made are not considered to
13 be on the docket, unless the applicant specifically places
14 them on the docket, then that material is the same as the
15 documentation which we have reviewed. And we can reference
16 that material and we can ask questions on that material, as
17 we could with a document that was originally placed on the
18 docket.

19 Considering the magnitude of the material that was
20 presented, the depth of the equations, we have suggested
21 that Siemens place this material on the docket so that it is
22 included. And that forestalls us from having to ask the
23 questions of how did you get to this equation, because the
24 material is right there. That may help out in the review.

25 We are running the code, as I said. We are going

1 to code-to-code comparisons. We would like to look at decks
2 which have been prepared by the applicant for use with their
3 code. We have given them a list of decks which we have for
4 our version of RELAP5 small break LOCA and said that if they
5 have decks that correspond for their version, we would like
6 to have whatever they feel that they can give us, so that we
7 can run the deck on their version of the code and run a
8 corresponding deck that we have on our version of the code.
9 Give us a code-to-code comparison so we can see what the
10 differences are between their version of RELAP5 and our
11 versions of RELAP5.

12 CHAIRMAN WALLIS: Are you going to run their code
13 yourselves?

14 MR. LANDRY: Pardon me?

15 CHAIRMAN WALLIS: Are you going to run their code
16 yourselves?

17 MR. LANDRY: Yes, we are.

18 DR. ZUBER: That is very good.

19 DR. KRESS: I anticipate, Ralph, that you can pick
20 out some sort of small break LOCA to run, some case, and you
21 do it with your version of the RELAP5 Mod 3, say, and you
22 repeat the same thing with the S-RELAP5, that you will get a
23 peak clad temperature with the S-RELAP5 that is lower than
24 the one you get with RELAP5 Mod 3. That is what I would
25 anticipate, based on what I have heard.

1 Now, how will you react to that? I mean what does
2 that -- how does that input into the acceptability? What do
3 you with that sort of information?

4 MR. LANDRY: In this case I think it could come
5 out more, because they have an Appendix K version and our
6 code is not Appendix K. What we have -- what we want to do
7 is, where we have a comparable deck, run the two decks so we
8 can see what the effect is of their Appendix K code versus
9 our code which is not claimed to be Appendix K, nor is it
10 claimed to be best estimate or realistic, but it is a
11 confirmatory code we use.

12 DR. KRESS: All of the conservatisms that you have
13 put into the Appendix K calculation, why don't you put those
14 into your model to compare directly with the calculation?

15 MR. LANDRY: We can, but we don't want to do the
16 code development work that is necessary.

17 DR. KRESS: Most of that is not code development,
18 unless you have to replace the blowdown model with a Moody
19 model. The rest of it is just, you know, putting in power
20 20 percent more.

21 MR. LANDRY: Those kinds of factors we can put in
22 very easily. We can bias our model, our input model so that
23 it matches up in those easy areas to make the compensation.
24 We wanted to see what the effect is of what they have done
25 to the code versus what we are using as our latest version

1 of RELAP5.

2 We have also been looking at and discussing among
3 ourselves what are some of the possibilities of looking at
4 breaking out individual components, looking at the
5 individual components and how they are modeled, and how can
6 we better understand such things as flows in Tees and flows
7 in the lower loop seal.

8 We have recently installed FLUENT, a CFD code, on
9 one of our machines. We are not up to speed and running the
10 code yet.

11 DR. ZUBER: Who developed it?

12 MR. LANDRY: Pardon me?

13 DR. ZUBER: Who developed FLUENT?

14 MR. LANDRY: It is a commercially available code.

15 DR. ZUBER: Who is the developer?

16 MR. LANDRY: I don't know who.

17 CHAIRMAN WALLIS: FLUENT. FLUENT is a
18 corporation, it is the name of the corporation.

19 DR. ZUBER: Is this Spaldings? No.

20 MR. LANDRY: But it is a CFD code. We have that
21 code available provided we can become comfortable enough
22 with running the code during the time this review is
23 ongoing.

24 CHAIRMAN WALLIS: A 2-phase version of FLUENT or
25 just a 1-phase version?

1 MR. LANDRY: I really don't know. But we have
2 that code available to us, that if we feel comfortable
3 enough with the code, we may even break out individual
4 components and look at modeling them with FLUENT for
5 comparison purposes, to give ourselves an understanding of
6 what RELAP5 is doing.

7 We are looking at various ways to understand the
8 code and what it is saying.

9 DR. SEALE: Ralph, before you leave that, I want
10 to ask you a couple of questions that go a little bit beyond
11 the Appendix K issue.

12 MR. LANDRY: Yes.

13 DR. SEALE: Siemens slipped a mickey in here just
14 a little bit in the sense that they also showed us some
15 results from a code they call BETHSY.

16 MR. LANDRY: BETHSY is a facility.

17 CHAIRMAN WALLIS: Realistic, you mean?

18 DR. SEALE: No, no, this last one.

19 CHAIRMAN WALLIS: Oh, the comparison is with
20 BETHSY.

21 DR. SEALE: Yeah.

22 CHAIRMAN WALLIS: Using a best estimate.

23 DR. SEALE: Yeah.

24 CHAIRMAN WALLIS: BETHSY.

25 DR. SEALE: Yeah, BETHSY. Anyway, there are some

1 -- and, purportedly, it represents at least a cut at a best
2 estimate assessment, and we know there are other areas in
3 connection with the idea of risk-informing our regulation
4 where the capability to do a calculation that has the
5 discrimination of a best estimate calculation would be
6 helpful. Do you have any interest in looking at codes like
7 that, or is that part of your charter?

8 MR. LANDRY: Best estimate codes?

9 DR. SEALE: Yeah.

10 MR. LANDRY: Well, our understanding is we will be
11 looking at S-RELAP5 from a best estimate standpoint
12 eventually, or what they are calling realistic.

13 DR. SEALE: This version of it that uses not
14 Moody, but whatever it is you used to make it a, quote,
15 "best estimate" like code.

16 MR. LANDRY: Correct. It is understanding that
17 they are going -- Siemens is going to submit the realistic
18 LOCA in a few months in the future.

19 DR. SEALE: Okay.

20 MR. LANDRY: So part of what we are doing in this
21 review is we are reviewing S-RELAP5 for Appendix K small
22 break LOCA. Part of it is we are also looking at the
23 internals of the code and becoming more familiar with the
24 code, anticipating that we will be looking at in the future
25 from a realistic LOCA standpoint, too.

1 DR. SEALE: Okay. Very good. Okay.

2 MR. LANDRY: Which gives me a good lead-in to what
3 I wanted to talk about next, some of the people that are
4 involved in the review. Of course, I am involved in it, as
5 I have been in the past. Joe Staudenmeier has been involved
6 very deeply in our code reviews. Joe is temporarily pulled
7 off on some other very high priority work full-time, but
8 Joe's availability will be in and out in this review.

9 Undine, who you have met in the past, has been
10 very heavily involved in running the codes for us. Undine
11 is going to be taking a rotational assignment.
12 Unfortunately for us, away from us, I guess fortunately for
13 you, she will be with the ACRS staff.

14 We are picking up a couple of other people. Tony
15 is going to be helping us, Tony Attard is going to be
16 helping us with some of the reviews. He has been involved
17 in a number of the reviews involving work that Siemens has
18 done. Walt Jensen is going to be helping us out doing some
19 of the code running, a very experienced RELAP5 runner.

20 Yuri is not terribly involved in the RELAP5 stuff
21 at this point. He comes with a great deal of experience in
22 statistics and is looking at another code's CSAU approach
23 and will be involved when we look at S-RELAP5 realistic,
24 looking at the statistics in that assessment.

25 Mohammed is assisting us, also part-time, looking

1 at some of the interfacial heat and mass transfer and some
2 of the fluid flow work. So this Gang of 4 has been expanded
3 of the gang of two, four, six -- eight now, but it is not
4 full-time, it is people in and out.

5 CHAIRMAN WALLIS: Undine is no longer with you.

6 MR. LANDRY: Well, she will be back.

7 CHAIRMAN WALLIS: Oh, okay.

8 SPEAKER: She hasn't left yet. We will squeeze
9 some work out of her before she comes to --

10 MR. LANDRY: We may have to negotiate on that.

11 DR. SEALE: What is in it for us?

12 [Laughter.]

13 MR. LANDRY: The schedule which we are working
14 under at this point, we began the review at the end of June,
15 the beginning of July of this year. Of course, we are
16 meeting with the subcommittee today. We anticipate having
17 our formal RAIs out in September, late September, and have
18 answers back from Siemens by the of October to the formal
19 RAIs.

20 We are proceeding as we have in the past, as we
21 come up with questions, give the questions to the applicant
22 right away and then follow up with a formal package when we
23 have all of the questions together.

24 We anticipate a draft SER in mid-December, and
25 around the same time an ACRS meeting. We have to talk with

1 Paul about the timing, but our anticipation is that the
2 draft SER and the ACRS meetings would be very closely tied
3 together.

4 We also anticipate the final SER then to be issued
5 shortly thereafter. Hopefully, the SER will be in great
6 shape when it is in draft form, and shortly after, we will
7 be able to issue the final formal SER.

8 CHAIRMAN WALLIS: Now, what do you expect the ACRS
9 to do as a result of this meeting today and yesterday? Is
10 this a sort of informational meeting where we learn stuff
11 and then Siemens has a look at us and learns the sort of
12 questions we ask? Or is this something -- I am not sure we
13 are ready to reach any conclusions that should go in the
14 form of a letter yet.

15 MR. LANDRY: No, but I would anticipate, not
16 trying to second guess the Chairman, the Chairman reporting
17 back to the full committee that this meeting has taken
18 place, and that you have a LOCA code that has been submitted
19 for review.

20 CHAIRMAN WALLIS: That is very different from
21 having Siemens comes to the full committee.

22 MR. LANDRY: That is really how the ACRS wants to
23 handle the procedure from this point. I am only talking
24 about my guess at what could be done, but informing the full
25 committee that this is under review, because the ACRS does

1 have the responsibility to comment on LOCA codes and LOCA
2 analyses. So it would be in line for this committee to
3 formally inform the full committee that this discussion is
4 under way.

5 CHAIRMAN WALLIS: So it might be useful for us to
6 give you some feedback or the Commission some feedback about
7 what some of our concerns might be if we have some?

8 MR. LANDRY: That would be correct. We would be
9 very interested in having feedback from the subcommittee
10 with regard to the presentation of material you have heard
11 today.

12 DR. POWERS: The Subcommittee does not reach
13 conclusions, they are an information gathering body. If you
14 want something from the ACRS, you will have to go through
15 the full Committee.

16 MR. BOEHNERT: I was just going to say that, thank
17 you. We have time scheduled at the full Committee at the
18 end of August for that eventuality.

19 DR. SEALE: And it would be nice if you were here
20 when he reports to the full Committee.

21 MR. LANDRY: I think my management will impress
22 upon me, that.

23 [Discussion off the record.]

24 CHAIRMAN WALLIS: We won't know how you think
25 about this code until we see some RAIs or something, until

1 we see the SER.

2 MR. LANDRY: As we have done in the past, I think
3 we'll be keeping the Subcommittee informed of our concerns,
4 too, so that you can see what our thoughts are on this
5 matter.

6 Likewise, we would be very interested in the
7 thoughts that the Subcommittee and full Committee might have
8 on the code.

9 DR. SEALE: Well, as you inform the applicant of
10 the preliminary nature of your RAIs, will you also inform
11 us?

12 MR. LANDRY: We can do that.

13 DR. SEALE: Just let Paul know?

14 MR. LANDRY: Yes.

15 CHAIRMAN WALLIS: I wondering if the full
16 Committee is to give you some feedback from our August --
17 it's going to be our September meeting, end of August,
18 beginning of September -- and would this be most
19 appropriately on the small break LOCA part?

20 MR. LANDRY: The code itself and the small break
21 LOCA.

22 CHAIRMAN WALLIS: Everything we went through
23 today? I mean, in the last two days we did two things: We
24 looked at -- we also got a preview of this realistic type
25 code, and those are two different beasts.

1 MR. LANDRY: At this point, I would like to steer
2 away from the realistic LOCA and stay with the application
3 to small break LOCA, but that, of course, includes the code
4 itself. We can't divorce the code from its application.

5 CHAIRMAN WALLIS: Well, I was wondering how we
6 could compress this information into a form that the Full
7 Committee can digest. You need to think about that.

8 MR. LANDRY: Okay.

9 CHAIRMAN WALLIS: It's been tough enough for us,
10 and we had a lot of time to read documents and so on before
11 we came here, and we had a day and a half.

12 MR. LANDRY: Well, we've had a great deal of
13 information in the past day and a half. It's provided --

14 CHAIRMAN WALLIS: I think we've all learned.

15 MR. LANDRY: It's provided the Subcommittee, it's
16 provided the staff with a great deal.

17 DR. ZUBER: The reports, I thought myself, why
18 should I read them? You have such a big stack to dig into,
19 and then what I heard is sometimes not related to what I
20 read, or I would have not to go back and dig in again.

21 CHAIRMAN WALLIS: I tend to regard what's written
22 down as more significant than what's said, though. If
23 something is written down that is incorrect, and it's being
24 refuted by six people, that's far more significant to me
25 than something which is said here by someone making a

1 presentation extemporaneously.

2 MR. LANDRY: Well, that's been a problem.

3 CHAIRMAN WALLIS: The thing that bothers me about
4 these things is that when I look at the documentation, there
5 are typos and so on, and I say how can this be in a final
6 document?

7 MR. LANDRY: That's been a problem that we've
8 faced for a number of years. Why do we get a document in
9 with a sworn affidavit on the front that says that I have
10 reviewed this and it is true and accurate, and you read
11 through and the first thing that you see, right in the
12 letter, the cover letter, it says referencing a meeting
13 that's two months into the future.

14 Is this person looking at a crystal ball? They
15 can't possibly have read their own letter.

16 Now, these things happen, and I don't know how to
17 justify it, other than when you're very close to material,
18 you don't see the mistakes.

19 CHAIRMAN WALLIS: So should we move on to sum up
20 from Siemens? Are we ready for that? Thank you very much,
21 Ralph.

22 MR. HOLM: Is it all right if I just do the
23 summary from here?

24 CHAIRMAN WALLIS: Sure, that's fine.

25 MR. HOLM: What I plan to address is two questions

1 that you asked yesterday, one about Siemens's expectations
2 from the ACRS, and, second, with regard to documentation.

3 Before I proceed to that, I wanted to -- I think I
4 would use two clarifications on Ken Carlson's last slides,
5 particularly the final statement where he says therefore the
6 proposed SPC, SP LOCA methodology based on S-RELAP-5 is
7 suitable for SP LOCA licensing analysis.

8 When we say a statement like that, I believe what
9 we're saying is that we provided evidence to demonstrate the
10 code gives conservative peak cladding temperatures and
11 oxidations. You know, its primary purpose for small break
12 LOCA is to compare against the criteria in 10 CFR 5046, and
13 the justification primarily of the code does that in a
14 conservative fashion, so the material we present in the
15 topical report is intended to do that. That's what we mean
16 by that sentence.

17 Second, we talked about the biasing of the loop
18 seals quite a bit. That biasing is primarily to avoid what
19 we would look at as changes in peak cladding temperatures
20 due to small changes in input to the code.

21 The code can calculate different numbers of loop
22 seals clearing at different times, if you allow the code to
23 calculate it. Those variations in PCT cause us problems
24 because they don't give consistent results.

25 The biasing that we chose to do increases the

1 conservatism of the code. We bias the broken loop, even
2 though the code might calculate the broken loop to clear.
3 That raises the peak clad temperature.

4 We bias the second loop to plug, that increases
5 the peak cladding temperature.

6 CHAIRMAN WALLIS: So you're saying that these
7 inconsistent results that you don't like, all give a peak
8 clad temperature which is less than the biased?

9 MR. HOLM: Generally.

10 CHAIRMAN WALLIS: Generally?

11 MR. HOLM: Generally in the sense that if the code
12 calculates through the plug, then we get basically the same
13 answers if we made it plugged, too. But sometimes it won't
14 calculate, therefore you get --

15 CHAIRMAN WALLIS: But it's trying to represent a
16 reality, and to me these inconsistent results indicate that
17 various things could happen, depending upon the balance of
18 things, and that in an actual LOCA, we're not quite sure
19 which loop seal is going to unplug and so on.

20 MR. HOLM: We agree. We've had a number of
21 discussions inhouse.

22 CHAIRMAN WALLIS: You really ought to do that. I
23 mean, the fact that you get variable results may be
24 realistic.

25 MR. HOLM: A number of people in Siemens have

1 argued that this variation in the peak cladding temperature
2 may be real. In fact, I think some of the experiments show
3 that.

4 CHAIRMAN WALLIS: If you run five LOCAs at
5 different PCTs.

6 MR. HOLM: Different PCTs. But we do this in a
7 licensing environment, and that inconsistency causes us
8 problems.

9 CHAIRMAN WALLIS: But then I think you have to
10 show that your biasing really is conservative.

11 DR. KRESS: I think that's the point. You have to
12 show that.

13 CHAIRMAN WALLIS: You have to show that; you can't
14 just --

15 MR. HOLM: Perhaps we haven't done that
16 adequately.

17 CHAIRMAN WALLIS: Right, right.

18 MR. HOLM: That's all I wanted to say in terms of
19 clarification of the presentations.

20 CHAIRMAN WALLIS: Where do we go from here?

21 MR. HOLM: I was going to go to expectations next.

22 CHAIRMAN WALLIS: Okay.

23 MR. HOLM: I guess I'd say that I have desire,
24 maybe, rather than an expectation. I'll state my desire.

25 My desire is that ACRS comment to the NRC, that

1 they see no reason that the NRC should not approve this --
2 that's my desire.

3 How you make that comment, I don't think I
4 understand the workings of the ACRS Subcommittee well enough
5 to know that.

6 CHAIRMAN WALLIS: This would seem to be a little
7 premature in that the staff has not yet done their SER,
8 their SAIs. We don't know how things are going.

9 When we see what the staff evaluation looks like,
10 we might be in a position to say we don't see any reason to
11 disbelieve the staff's conclusion, which could be negative.

12 I'm not sure we're ready to reach our own
13 conclusion yet.

14 MR. HOLM: I think Siemens would accept that
15 timing.

16 CHAIRMAN WALLIS: But do you wish some response?
17 If you want a response from the ACRS, as Dr. Powers
18 indicated, it doesn't come from the Subcommittee; it comes
19 from the whole ACRS. That would mean that you'd have to
20 appear, I think, at the next meeting in beginning of
21 September and somehow compress the information that the
22 whole Committee needs to know, into an hour instead of 12
23 hours or whatever we spent here.

24 DR. POWERS: Do you really think that the
25 Committee would write anything in the absence of the SER?

1 CHAIRMAN WALLIS: I'm really doubting that the
2 Committee would write a letter.

3 DR. KRESS: Usually when we write a letter under
4 those circumstances, it's because we see some pathological
5 problem.

6 MR. BOEHNERT: That's the only thing that we could
7 focus on, is any significant concerns, I think, that we had
8 at this point that deserved notice of the staff's notice or
9 whatever.

10 CHAIRMAN WALLIS: And my inclination is to say
11 we've learned a lot and I think you've learned a lot, and
12 the staff has learned a lot in the last couple of days.

13 The Subcommittee will get its heads together and
14 just think about what's our view of the way things are
15 developing and make a presentation for information purposes
16 to the full Committee.

17 But I don't think the full Committee is going to
18 be in a position to write something conclusive.

19 DR. SEALE: You'd probably sleep better for the
20 next six months if you don't hear anything from them.

21 MR. HOLM: That's acceptable. Our staff might --
22 safety evaluation from the NRC saying that this code is
23 acceptable for.

24 CHAIRMAN WALLIS: I think that from my point of
25 view, I would like to know how Siemens wants to respond to

1 our comments on the documentation, and we didn't go through
2 line-by-line, but there are -- if we did, there would be
3 quite a few comments, I think, and then the fact that Joe
4 Kelly produced something which was quite different in many
5 ways.

6 Maybe the answer is the same, but his rationale
7 for things was rather different from what's in the
8 documentation. Do you intend to produce new documentation?

9 MR. HOLM: Documentation was the second subject I
10 was going to address, so I'll do that now.

11 CHAIRMAN WALLIS: Okay.

12 MR. HOLM: First off, any errors that have been
13 identified in the documentation, I will correct those, and
14 in addition --

15 CHAIRMAN WALLIS: What's the mechanism for our
16 doing that, though? Is it for this Subcommittee to do that?

17 DR. POWERS: You're free to pass on anything that
18 you have identified. You don't need the formality. It's at
19 your discretion whether you want to do it or not.

20 Equally well, you could come to the Committee and
21 say this documentation is outrageous, I've got 600
22 typographical errors.

23 CHAIRMAN WALLIS: I guess they could say nothing
24 and wait and see and if nothing changes, then all the
25 comments I have will go to the full Committee in December.

1 DR. POWERS: You could get the full Committee to
2 agree to it, and I guarantee you they wouldn't.

3 CHAIRMAN WALLIS: Well, they would probably agree
4 that if it says del dot instead of --

5 DR. POWERS: They would agree with that. I don't
6 think they would say that they wanted to write a letter on
7 it. They would tell you to send them on as personal
8 communication.

9 MR. CARUSO: Actually, there is one -- the
10 ultimate way to correct all this is when we issue the final
11 SER, Siemens is required to revise the topical report, which
12 includes all the documentation, and include the SER and make
13 any changes to it to reflect the issues that were discussed
14 in the SER.

15 And if we raise the documentation as an SER issue
16 and said the documentation had to be brought up to date,
17 they could do that as part of that process.

18 CHAIRMAN WALLIS: Well, it seems to me that it's
19 not my job to edit your report. I'm not sure I need to give
20 you any of the information.

21 If there are errors, which I believe there may be
22 in some part of the report, then I'm not sure it's my job to
23 correct your report. I'm tempted to do nothing, just keep
24 my list of things and see what happens.

25 MR. BOEHNERT: If Siemens looks at a transcript,

1 they're going to see plenty of issues cited by you and
2 others.

3 CHAIRMAN WALLIS: They'll get some clues.

4 MR. BOEHNERT: There were concerns.

5 CHAIRMAN WALLIS: I think that's the appropriate
6 thing. I really don't think it's the job of a member of the
7 ACRS to correct a report written by an applicant.

8 MR. HOLM: I guess I would agree that it's not
9 your responsibility to correct the report, but obviously if
10 you have identified issues in the report, it would certainly
11 be helpful to us to see what you've identified, both so that
12 we could correct or evaluate whether those things need to be
13 corrected so that we could look for other errors of the same
14 type.

15 It would be an aid to us, so we would be
16 appreciative if you would share that.

17 CHAIRMAN WALLIS: I guess what I intend to do is
18 -- our job is to evaluate the credibility of the
19 application, and the document comes in with what look like
20 obvious typos that someone didn't pick up, and then that
21 tells us something about the quality of the work.

22 So that's what you need to -- I think it's this
23 big picture, rather than whether or not there's an N or an N
24 plus one in Equation 2104.

25 MR. HOLM: Well, in the big picture, of course, we

1 would like to correct all errors in the document, including
2 any --

3 CHAIRMAN WALLIS: I would like to see a document
4 with no errors.

5 MR. HOLM: The second part of the documentation,
6 there were a number of comments about how much information
7 was in there, the level of depth. I guess our response
8 there is we will interact with the staff.

9 CHAIRMAN WALLIS: Well, I have a comment, and I
10 guess you should particularly avoid writing down things
11 which appear to be -- how shall I put it? I mean,
12 stretching the meaning of mathematical symbols beyond
13 anything that's in common usage, such as having a divergence
14 that has an area in it, where area is not a field quantity.
15 Things like that really bother me.

16 MR. HOLM: I'll take that --

17 CHAIRMAN WALLIS: When there's nothing that
18 defines that area, it's some mysterious thing which doesn't
19 seem to have any reason for being inside the divergence,
20 even if it were a physical quantity, and we don't even know
21 what it is.

22 That sort of thing should really be avoided.

23 MR. HOLM: I'll take that as a comment. But with
24 respect to additional documentation, I think our plan would
25 be that we interact with the staff and try to identify

1 places where they --

2 MR. BOEHNERT: Sorry, would you repeat that
3 comment. He didn't hear that.

4 MR. HOLM: With respect to additional
5 documentation, we will discuss that with the staff and try
6 to come to a conclusion with them on what additional
7 information they need and in what timeframe.

8 DR. ZUBER: That was that -- pressure gradient
9 which is really incorrect.

10 CHAIRMAN WALLIS: I think I figured out what Joe
11 meant, but -- so are we through?

12 MR. BOEHNERT: We have --

13 CHAIRMAN WALLIS: Are you going to leave, Tom? It
14 would be nice if the Subcommittee could be alone for awhile,
15 if you have time.

16 Could we come off the record now. Are you ready
17 to do that?

18 MR. BOEHNERT: If you'd like.

19 CHAIRMAN WALLIS: Anyone have anything else to
20 say?

21 [No response.]

22 CHAIRMAN WALLIS: Now, we'll close this meeting.

23 [Whereupon, at 12:08 p.m., the meeting was
24 adjourned.]

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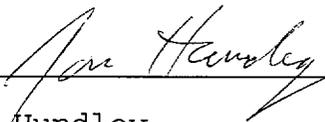
REPORTER'S CERTIFICATE

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

NAME OF PROCEEDING: THERMAL-HYDRAULIC PHENOMENA

PLACE OF PROCEEDING: Rockville, MD

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



Jon Hundley

Official Reporter

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