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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

PUBLIC MEETING WITH NUCLEAR ENERGY INSTITUTE

U.S. Nuclear Regulatory Commission
Two White Flint North, Auditorium
11545 Rockville Pike
Rockville, MD

Thursday, December 3, 1998

The above entitled meeting commenced, pursuant to notice, at
9:01 a.m.

PARTICIPANTS:

- CARL PAPERIELLO, NMSS
- LIZ TEN EYCK, NRC/FCSS
- BILL BRACH, NRC/FCSS
- DREW PERSINKO, NRC
- GARY COMFORT, NRC/NMSS
- HEATHER ASTWOOD, NRC/FCSS
- ROB LEWIS, NRC
- KATHRYN WINSBERG, NRC

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P R O C E E D I N G S

[9:01 a.m.]

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3 MR. SHERR: Good morning. I'd like to welcome you all to
4 our meeting today on the Part 70 developments. My name is Ted Sherr.
5 I'm chief of the Regulatory and International Safeguards Branch in the
6 Division of Fuel Cycle Safety and Safeguards.

7 There's a lot of familiar faces here, and I think we all
8 know why we're here. But just in case there's somebody here who hasn't
9 been here before, the purpose of this meeting is to provide an
10 opportunity to further discuss the amendments to 10 CFR Part 70 to place
11 the regulations on a more risk-informed basis.

12 It might be useful to quickly review some of the background.
13 Staff efforts on the revision of 10 CFR Part 70 commenced in 1993, and
14 so we've almost been working on this for six years. So it started in
15 '93. At the request of the Commission in 1995 staff's preliminary draft
16 rulemaking package was provided for public review, and at that time the
17 industry indicated they did not support the proposed approach and the
18 rule at that time.

19 Subsequently the Nuclear Energy Institute at a Commission
20 meeting in 1996 proposed an approach for rulemaking, and at the
21 encouragement of the Commission, NEI submitted in September of '96 a
22 petition for rulemaking on Part 70.

23 In June '97 the staff proposed to the Commission a
24 resolution of the petition for rulemaking, and identified -- they
25 recommended a number of features for the proposed rule. This was
contained in a Commission paper, SECY-97-137. The staff recommendations
included some elements of the petition for rule that had other elements
as well.

In August of '97 the Commission approved staff's proposal
and requested that a rulemaking package be provided to the Commission

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1 for its consideration by July 1998, which is now nearly five months ago,
2 I guess. And the staff did provide such a package to the Commission in
3 July. This was in the form of [SECY-98-185](#), and it was a draft proposed
4 rule for its consideration.

5 A month later there was a Commission meeting on [August 25,](#)
6 [1998](#), where NRC staff briefed the Commission on the rulemaking package,
7 and also NEI provided a briefing to the Commission and indicated in
8 there preliminary views on a number of the issues raised in the rule.

9 On that same day there was another public meeting with the
10 executive director for operations, and at that meeting it was decided
11 that another public meeting would be useful to further discuss issues
12 relating to the proposed rulemaking. And subsequently, approximately a
13 month later, [September 29](#), we had a meeting in this room, I think -- no,
14 it wasn't -- where various matters were discussed, and there were
15 presentations by NRC staff on the proposed rule and the standard review
16 plan, and presentations by NEI and the industry on a number of related
17 issues.

18 At that time both NRC and the industry representatives
19 identified a number of issues that required further discussion, and we
20 agreed there was a need for an additional meeting. And today's meeting
21 is in response to that need.

22 And finally in the sequence of events, just this week, on
23 December 1, the Commission issued a [staff requirements memorandum](#) on the
24 Part 70 rulemaking, and this will be discussed under the first agenda
25 item.

The [agenda for today's meeting](#) has been distributed, and
it's included in your packet. Arrangements have been made to allow two
days for discussion of the issues covered by the agenda.

The Nuclear Energy Institute has submitted written comments
in relation to the second agenda item, that is, [chemical safety](#), and a

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1 third agenda item, [standard review plan issues](#). Copies of this
2 correspondence is included in the packet of information.

3 In addition, NRC staff have identified some questions
4 relating to the NEI comments, and these have been provided to NEI, and
5 these are included in the packet as well.

6 We had anticipated receiving written comments on issues
7 relating to nuclear criticality. We understand that these comments are
8 still forthcoming, and will involve a number of detailed technical
9 issues. An additional meeting is being scheduled tentatively at this
10 point in mid-January to discuss the detailed technical comments
11 concerning nuclear criticality issues. We will still discuss nuclear
12 criticality today, but in terms more general issues.

13 Before we begin I would like to make some introductions:
14 Carl Paperiello, Director of NMSS; Liz Ten Eyck, Director of Fuel Cycle
15 Safety and Safeguards; Bill Brock, Deputy Director of Fuel Cycle Safety
16 and Safeguards. And then there's what we call the Part 70 task force.
17 This task force has been established to provide a dedicated effort to
18 work on the various Part 70 issues and to develop the rulemaking package
19 for the Commission within the prescribed schedule. And the leader of
20 the task force is Drew Persinko. And the members are Gary Comfort,
21 Heather Astwood, Rob Lewis, and our legal adviser is Kathryn Winsberg.

22 So before we begin, a few administrative announcements. The
23 [agenda](#) doesn't include times for agenda items, basically because we
24 really don't have a very good idea how long and how much time we're
25 going to take on each agenda item. But I think we have enough time, 2
days, to cover it, and we're not too concerned. We anticipate we'll
cover at least the first four agenda items today.

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On each agenda item there's opportunities for questions and
discussion, and I'd like to remind all speakers to be sure to use the
microphones when they make any statements, to assist our recorder of the

1 meeting make sure he has a complete record.

2 We plan on a short break around 10:15 or whenever it seems
3 to fit in with the agenda, and break for lunch at 12 or thereabouts, and
4 then we reconvene an hour later and continue until 4:00 o'clock,
5 possibly with a break in the afternoon as well.

6 We are scheduled to begin tomorrow at 9:00 o'clock. There's
7 the usual restrictions for no smoking, eating, or drinking in this room,
8 and the rest rooms are right outside the doorway there. As I mentioned
9 before, this meeting is being recorded.

10 We can begin, unless there are any questions. Oh, I'm
11 sorry. We did the introductions. Felix, if you would please do the
12 industry introductions.

13 MR. KILLAR: I think I'll let each individual introduce
14 themselves. That way I won't mispronounce their last names. So I know
15 them as Brian and Charlie and Wilbur and what have you. But I'm Felix
16 Killar. I'm the director of materials licensees for Nuclear Energy
17 Institute.

18 MR. SILVERMAN: I'm Don Silverman. I'm with Morgan, Lewis &
19 Bockius.

20 MR. VAUGHAN: Charlie Vaughan, GE Nuclear Energy.

21 MR. GOODWIN: Wilbur Goodwin, Westinghouse, Columbia, South
22 Carolina.

23 MR. ELLIOTT: Mark Elliott, BWX Technologies in Lynchburg,
24 Virginia.

25 MR. SHARKEY: Bill Sharkey, ABB Combustion Engineering,
Hematite, Missouri.

MR. KIDD: Brian Kidd, BWX Technology.

MR. EDGAR: Jim Edgar, Siemens Power Corporation, Richland,
& Washington.

MR. SHERR: Thank you. We'll proceed to the first agenda

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1 item, which is the next steps in the development of the revised 10 CFR
2 Part 70.

3 As I mentioned in the introductory comments, the Commission
4 issued this week the [staff requirements memorandum](#) in relation to the
5 proposed rule package that was provided to the Commission last July, and
6 a copy of that SRM is included in the packet of information that you
7 have. The SRM indicates that the Commission disapproved publication of
8 the proposed rulemaking and requested that staff continue to discuss all
9 relevant documents with stakeholders in the public forum including the
10 use of Internet, and submit a revised proposed rulemaking to the
11 Commission for approval in six months. That's six months from the date
12 of the issuance of the SRM.

13 The Commission indicated that staff should consider the
14 insights from the public discussions as well as a number of issues that
15 they identified in the SRM in developing their revised proposal.

16 In terms of the process for public comments, as indicated,
17 the Commission indicated that we should use a public forum, including
18 the Internet. As I mentioned earlier, we have scheduled another meeting
19 to deal with nuclear criticality safety issues in mid-January. We plan
20 as the primary mechanism for providing related rulemaking information
21 and posting a rule on SRP options under consideration to use the website
22 or Internet for this purpose and as a means for soliciting public
23 comments on these posted information.

24 The website has already been established. The public
25 announcement for this meeting had identified that. It presently
includes the transcripts of past meetings, the proposed rulemaking, that
is, SECY-98-185, the Nuclear Energy Institute comments on chem safety
and the standard review plan, and staff questions concerning these
& comments and in fact the agenda for this meeting.

In the future we will post the transcript of this meeting as

1 well as any other future meetings as well the rule on SRP options which
2 will include selected draft text for public comment.

3 When we post the information on the website in the future,
4 we plan to provide notifications to all individuals who have identified
5 an e-mail address on the signup sheet when they came into this room, and
6 to any other individuals who express such interest. So if you neglected
7 to sign in or provide an e-mail address and you're interested in being
8 notified when we put things on the website, please do so.

9 In your packet there's more information concerning the
10 contents of the website and directions how to access it. Barry
11 Mendelsohn, who is sitting in the third row here, he's managing the
12 input to the website for us, and if you have any questions, please
13 contact him. If you want to do it by e-mail, his e-mail address is
14 BTM1#nrc.gov.

15 As I mentioned in the third item here, the SRM identifies a
16 deadline of six months to provide the Commission a proposed rule
17 package. We have worked out a schedule of activities needed to satisfy
18 this thing, and it means that at some point or other we have to freeze
19 comments that we can consider in order to get the package put together
20 and through the concurrence process within NRC. And based on our
21 current schedule we see a deadline for comments on the rule in the
22 mid-February time frame, and on the SRP in the early March time frame.

23 And we plan to be posting the rule options on the website
24 through the end of January, so there would be about a two-week time
25 period to react to those, and the SRP options through mid-February,
again allowing two to three weeks to comment on those.

MR. KILLAR: Ted, if I can ask a question here. Is there
anything you can do to improve upon that schedule? Looking at
mid-February for the rule & mid-March for the SRP, question whether we
have adequate time. I know your suspense date in the SRM is May 19, and

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1 if you back off a month from that, that's say April 19, you've got to
2 cut off at mid-March, which is basically a whole month. Not that I'm
3 trying to make you guys overwork or anything, but it seems like you've
4 got too much room in your schedule here. Can we cut some of that down
5 so we have more time for interactions and to get this thing right?

6 MR. SHERR: Well, we'll take a look. I mean, we're --
7 actually my problem is I think this is more optimistic than -- we'll
8 look at it, and we haven't done all the detailed scheduling aspects,
9 which could throw it one way or the other actually, but it's our
10 interest to extend it as long as possible, and we will try to do that.
11 And I think there's also the possibility that comments we receive after
12 a date -- we may be able to reflect them depending on to what degree
13 they deal with that, and to the degree that we can't deal with them in a
14 rulemaking we might just deal with it in the Commission paper itself
15 saying subsequent to the deadline for comments, which could be factored
16 into this thing, we received these things on this issue.

17 But as a general matter we would hope that we could in fact
18 be responsive to all comments received in the actual proposed rule to
19 the Commission and will try to extend it as possible, but I would also
20 at the same time encourage you to try to get your comments in as early
21 as possible.

22 MR. KILLAR: A related question. You say you're going to
23 put on the website options for either I guess parts of the rule or the
24 directions rules could go as well as options in the SRP. Is there going
25 to be any clear indication as to which is your preferred alternative,
because we may look at option A and say hey, that's exactly the way we
feel it should go, while you guys are sitting there and looking at
option B and saying yes, that's exactly the way we're going to go, but
we'll throw A out there.

MR. SHERR: I think in general that we would expect that.

1 We would indicate what our preferred alternative is but what other ones
2 could be considered. In looking for comments on that where in fact
3 we're looking at the comments to help us decide what the preferred
4 alternative is, we may not indicate that.

5 DR. PAPERIELLO: I'd like to comment on that. I would say
6 where we believe we have a preferred option, either because the staff
7 prefers it or we've had interaction with the Commission and the
8 Commission is the scene of the SRM, we're going to have very close
9 liaison with the Commission as we develop the rule, as this thing
10 evolves. So if we have issues that come up, we can get a quick readout
11 from the Commission where they stand, and where there is a preference
12 and whose preference it is we will indicate. There may be cases where
13 there is no preference, and we'll indicate that also. I think that
14 would be the best way to be fair to everybody and also know, you know,
15 just be the most efficient way to do it.

16 MS. EYCK: I'd just like to make one comment regarding the
17 schedule, and I think it's important that people realize how these
18 packages are put together.

19 First off, we need to focus on finalizing the rule, and
20 until we finalize the rule language, it's very difficult for us to
21 finalize the standard review plan. So one builds on the other. And
22 then we have a regulatory analysis to complete that has to be built on
23 the final rule and standard review plans, so that is something that I
24 think is important to recognize. And then we have the entire statement
25 of considerations to put together to explain the whole entire rule
packet. So it isn't something that we have an end date and then all of
a sudden we can put all this stuff together. One builds on the other,
and that I think is what we've tried to take into consideration in
& looking at the schedule and how long it's going to take to do those
OCI different steps that build on various foundations.
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1 So that's I think the reason that we talked about and
2 backing out through a time chart that that was the dates that we would
3 need to do to be able to complete all the additional tasks that go with
4 the rulemaking package by the due date established by the Commission.

5 MR. SHERR: Any other questions?

6 Okay. Then we can proceed on to agenda item 2, which is
7 chemical safety, and NEI and the industry will be providing their
8 presentation on that question.

9 MR. KILLAR: Bill Sharkey will be providing the
10 presentation.

11 MR. SHARKEY: Good morning. I'm Bill Sharkey, from ABB
12 Combustion Engineering. This morning I'm going to give a brief
13 [presentation on chemical safety](#). This is one of the areas where I think
14 we're pretty close to some kind of agreement, and hopefully by then this
15 workshop will have this behind us and we can go forward into the other
16 areas.

17 I'm going to cover a little bit on the proposed rule, the
18 major changes, the existing standards that we are all covered under
19 currently, our industry proposal, and a conclusion.

20 The proposed rule, [10 CFR 7060](#), has some -- hang on one
21 second -- covers chemical hazards resulting from the processing of
22 licensed radioactive material, adds some Appendices A and B that add two
23 new terms new to us and some more acronyms, AEGLs, ERPGs -- AEGL, acute
24 exposure guideline limits promulgated by EPA and the National Academy of
25 Science, and then ERPGs, emergency response planning guidelines,
promulgated by the American Industrial Hygiene Association. Also add a
new definition regarding chemical safety for significant damage to
property.

 There's numerous [existing standards](#) for chemical safety.
[EPA](#) has promulgated a [rule in Part 40](#). One of the biggest aspects

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1 that's just starting to take effect for the fuel industries is the
2 risk-management plan. In the risk-management plan there's typically a
3 threshold value above which you need to go into the risk-management
4 planning phase, and for most of the fuel facilities, we have one or two
5 systems currently that are subject to risk-management planning,
6 typically ammonia and for some facilities hydrogen.

7 OSHA, of course, is primarily responsible for chemical
8 safety, numerous standards on chemical safety covering most aspects of
9 chemical safety. And again they have a similar rule to the
10 risk-management plan that was promulgated several years ago, and that's
11 a process safety management standard. And again typically the same
12 chemicals are covered for our facilities under the PSM rule as for the
13 risk-management plan, and those typically are ammonia, hydrogen. The
14 process safety management rule, when you do your hazards evaluations,
15 the process is very similar to ISA, and most of us have gone through --

16 DR. PAPERIELLO: Stole it from.

17 MR. SHARKEY: Exactly. Copied. So a lot of us have
18 experience already in the methodologies of ISA by doing the hazards
19 evaluations under OSHA rules.

20 In 1988 OSHA, NRC signed a joint memorandum of
21 understanding, and this MOU highlighted four areas of regulatory
22 jurisdiction I guess may be the right word. The first three are within
23 the NRC domain: radiation risk produced by radioactive material --
24 obviously that one was a no-brainer; chemical risk produced by
25 radioactive material; plant conditions which affect the safety of
radioactive material, for instance, a fire, explosion, could interfere
or spread contamination, potentially cause criticality. Those are the
kind of things that were considered under that MOU.

I think we've kind of expanded that a little bit lately in
our thinking, that if you had a chemical release and it interfered with

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1 an operator who was relied upon for safety, that would be under the
2 NRC's regulatory jurisdiction. And then purely chemical risks covered
3 entirely by OSHA in the rules that are currently promulgated.

4 November 4 NEI sent a letter to the NRC with some [proposed](#)
5 [changes](#) to the chemical safety rule as written in the SRP, and the
6 changes were not real substantial, but included some minor definition
7 changes. We've redefined hazardous chemicals to hazardous chemicals
8 produced from radioactive materials, removed the phrase cause
9 significant damage to property, [and](#) don't really think it's appropriate
10 to have the AEGL and ERPG tables in the rule itself. The guideline
11 values listed in those tables are subject to change by those regulatory
12 agencies. The vast majority of these chemicals are things that we're
13 totally unfamiliar with in the fuel facility, have never used, probably
14 will never use, and it doesn't seem appropriate really to have these
15 Appendices A and B in the rule itself.

16 DR. PAPERIELLO: So you effectively would just have us
17 reference some -- those things.

18 MR. SHARKEY: Yes.

19 DR. PAPERIELLO: Gotcha.

20 MR. SHARKEY: In the language there, there was some
21 reference to issuing direct rulemaking if they changed, but it seems
22 more appropriate that you do direct rulemaking if there's exceptions, if
23 the standards change and we don't want them, then we do some kind of
24 rulemaking.

25 Not included in our [November 4 letter](#), we had some
discussion yesterday about the timing of how you apply these ERPGs and
AEGLs. The table itself says it's for a one-hour time period. These
are the periods of time that if you were exposed at this concentration
for one hour, the average person would not be expected to suffer any
consequences, irreversible consequences or death.

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1 The way -- if you take the tables out without that footer on
2 the top of it, it's not really clear. The analogy I would use would be
3 a radiation exposure rate. We don't regulate radiation exposure rates.
4 We regulate a dose. In this case we had some concern with the
5 concentration values. We could foresee a situation where somebody walks
6 into a room, smells real bad, turns around, their exposure duration was
7 seconds, you go back later in respiratory protection, take a sample of
8 the air. You find out that the concentration was above AEGL or ERPG
9 values, and it puts you into violation space. So there needs to be some
10 consideration for kind of the time-weighting average philosophy that
11 OSHA uses, though that's probably not totally appropriate for this
12 situation either, because there's probably concentrations over, you
13 know, a minute or so at levels greater than ERPG could cause
14 irreversible consequences.

15 So essentially what we believe is the OSHA-NRC MOU provides
16 appropriate foundation for the rule, the four items there.

17 In our November 4th letter, we applied the principles to the
18 rule and the SRP.

19 At this point I will take any questions on chemical safety
20 or I can go back there and we can answer them as a collective group, but
21 that concludes my presentation on chem safety.

22 DR. PAPERIELLO: I have a question and I just asked to see
23 where in the rule we had the question of property damage with chemicals.

24 Is there anybody who can tell me where you would have
25 property damage and not threaten human health or life from a chemical?

 MR. SHARKEY: You could have a storage area where maybe the
purely chemical's present in the storage area where if you had corrosion
it could cause a leak, property damage, to a vessel, footings, and not
& expose an individual to hazards.

 DR. PAPERIELLO: I guess I distinguish between two things.

1 I distinguish between your property and public property --
2 something off your site and there's two aspects.

3 The other thing has been pointed out to me. There is a
4 provision in the Atomic Energy Act that part of our job is to protect
5 not only life but we used to protect property but I know there is a
6 tension, there's been a tension historically as to whether or not we
7 should be concerned about whether or not licensees protect their own
8 property and I don't want to get in the middle of that argument, but I
9 am really thinking right now of offsite -- beyond your property, your
10 boundaries, the issue and question of whether we need the particular
11 phrase in the rule because of that aspect of the whole thing.

12 That is why I am trying to raise the question is it
13 offsite? -- if I deal with just offsite property right now, is there any
14 case where I can affect offsite property and not affect health or life,
15 because it might be moot issue.

16 It's something I am going to pursue outside of this.

17 MR. PERSINKO: We provided [questions](#) meant to have a
18 discussion on the various issues prior to the meeting. It is included
19 in the handout.

20 In the chemical area we see the question as being most
21 clarifications.

22 I wonder if we could get your responses to questions so far.

23 MR. SHARKEY: Could you read the question back? There were
24 two questions?

25 MR. PERSINKO: There were five questions.

MR. SHARKEY: Five?

MR. SHARKEY: Yesterday was the first time we took a look at
the questions.

In the area of chemical safety is it not real easy to draw
some of the distinctions we are trying to draw here.

1 The first question, NEI proposes removing reference to
2 accidents causing property damage -- and Carl, that was your question
3 there -- is property damage, I guess from chemical safety events,
4 covered by the Atomic Energy Act?

5 I am not sure -- we just pulled up the reference yesterday.
6 I don't think it is clear in our minds whether it is or not.

7 Question (B) -- In every instance in the NEI letter and its
8 attachments where NEI uses the term "radioactive material," doesn't NEI
9 actually mean licensed material?

10 Licensed material probably is a better term than radioactive
11 material. We agree with that.

12 Question (C) -- NEI comments identified those chemicals
13 added to, used in, and recycled from radioactive materials as beyond
14 NRC's purview. Use of these phrases could be confusing, e.g., chemicals
15 used in radioactive material are within NRC purview, while mixed
16 similarly, oil required to lubricate an item relied on for safety seems
17 to be within NRC's purview and let's stop there with that question.

18 I guess the oil itself they would use for an item relied on
19 for safety, the chemical hazards of that are not what we would consider
20 subject to the NRC's purview.

21 The safety function of the oil if we relied on a certain
22 type of oil to fulfill its safety function, an item relied on for
23 safety, and we used something else and it wasn't adequate, then I think
24 that would be in the NRC space, but not the chemical hazards or anything
25 associated with that oil.

 DR. PAPERIELLO: I guess I have got a question from my
staff.

 Would we consider oil used as a lubricant in a safety
application, its chemical risks, to be within our purview?

 MR. LEWIS: I don't think that is the question. I think the

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1 question is that the wording was confusing by using the term "added to,
2 used in, and recycled from" oil might be a bad example, but I think it
3 should only be thought of as an example. I don't think we are trying to
4 say we would regulate the chemical hazards of the oil, just that it
5 would be within our purview.

6 MR. SHARKEY: I guess maybe if I tried to clarify what we
7 meant by "added to, used in, and recycled from" with some real examples
8 it may be able to clarify that.

9 A chemical that would be added to nitric acid for instance
10 to dissolve uranium before it goes into the process has no radiological
11 significance. That chemical would not be regulated by the NRC.

12 The nitric acid used in the process, not regulated.

13 "Recycled from" could be ion exchange eluants. A lot of us
14 capture hydrogen fluoride now and sell it as a commercial product. We
15 have release criteria for that hydrofluoric acid. When we capture that
16 hydrofluoric acid, as long as we are within the release limits, that is
17 not subject to NRC purview.

18 Those are the kind of examples we were thinking of for those
19 terms.

20 MR. SHERR: My reading of your comments -- I think you were
21 suggesting that when the chemical is mixed with the NRC licensed
22 material, then it is within the NRC purview. Is that correct?

23 MR. SHARKEY: I think that is probably correct, but then
24 there's some uncertainty in that term. We will take the nitric acid
25 example again.

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If you take nitric acid and mix it with uranium, you get
uranyl nitrate. Uranyl nitrate is corrosive. Would the NRC if somebody
got a burn on their skin, are they worried about the chemical safety
consequences of the uranyl nitrate?

Now if the uranyl nitrate could cause a consequence of

1 concern, a large release of uranium or criticality because of its
2 chemical form, I guess we would consider that within the NRC's purview,
3 but I am not so sure about just the chemical hazards of uranyl nitrate.

4 Would the NRC be inspecting us to the material safety
5 datasheets? If the material safety datasheets were inadequate or if you
6 were missing one, and we all know that that never happens in our
7 facility, but if it did would that be subject to regulation? Those are
8 some of the questions I have on my mind for your regulation in that
9 area, so I don't think the "mixed with" is totally clear but I think as
10 a general rule of thumb, yes, when the chemical is mixed with licensed
11 material that it is regulated by the NRC.

12 MR. SMITH: Hi, Bill. Can I ask a question?

13 MR. SHARKEY: Sure, Garrett.

14 MR. SMITH: Part C or Section C in the MOU clearly states if
15 a chemical could affect the safe handling, i.e., a fire or explosion.
16 The oil example would be a good example where potentially it could cause
17 a fire. Your anhydrous HF or ammonia tanks at CE could potential go
18 back to safe handling especially with material, nitric acid added.

19 Wouldn't these fall under the MOU?

20 MR. SHARKEY: If their leak or spill could lead to a
21 consequence of concern, yes. If it doesn't cross those thresholds,
22 then, no. The chemical itself, the concentrations, no.

23 MR. KILLAR: If I could add to that a little bit, certainly
24 when you are doing your integrated safety assessment, you are going to
25 look at the storage tanks, whether it is ammonia or it is hydrogen or
what have you, and look at what could possibly -- what kind of adverse
events could possibly happen at those, whether it be a fire, explosion,
leaks, what have you, and then see how that impacts operations and the
& safety of the facility as far as nuclear material.

 If that hydrogen tank is located far enough from the

1 facility that if it blew up and blew away, but none of the shrapnel
2 penetrating the buildings or any of the radioactive material, then it
3 would have no NRC jurisdiction.

4 It would certainly fall under the jurisdiction of OSHA and
5 things on that line but not the NRC.

6 On the other hand is if that tank is sitting next to a
7 building and you can somehow envision an eruption of that tank that
8 would penetrate that building and then impact the operations within that
9 building, then it would have an impact and it would fall under NRC
10 jurisdiction, so, yes, it has to be taken into consideration but the
11 events and the sequences have to be taken into consideration to
12 determine whether there is truly an NRC jurisdiction or not. Bill?

13 MR. BRACH: I believe your comment, Felix, is on the right
14 path. I think you really can't answer the question which chemicals are
15 in or are not included without going through the ISA to look at the
16 consequences.

17 I think if you look at the item C or the third item in the
18 NRC-OSHA MOU and, Bill, you mentioned this in your overview, it does
19 talk about the impact of chemicals in the process area or at the
20 facility, the consequences of which could -- or potential consequences
21 of which could impact the ability of operators to carry out their
22 nuclear operations or the ability of the licensee to maintain their safe
23 nuclear operations -- to maintain safe operations.

24 I believe what you need to do is go through your ISA and
25 through that you will identify which chemicals are of concern, the
consequences of which could impact the ability to maintain safe nuclear
operations and those that are -- the answer to that is yes -- would fall
under Item C of the OSHA MOU and then would fall under the purview of
the regulatory scheme that we are discussing today.

Those that fall out, and I think Felix's example, the

1 allusion to a Back 40 type of activity, if there is no impact of those
2 chemicals at the facility on the ability to maintain safe nuclear
3 operations, they would fall under the fourth item, which on your
4 overhead was identified as OSHA area of responsibility.

5 I don't believe you can answer that question a priori and
6 say these chemicals are in or these are out without having gone through
7 the ISA analysis to see what the potential impact or consequences is of
8 those chemicals at the facility.

9 MR. SHARKEY: I think we agree with that.

10 MR. VAUGHAN: Just a couple of thoughts that may be just a
11 little redundant, but I think if you look at the MOU a little different
12 way and you look at what our discussions have been, it's pointing the
13 direction of the NRC to focus on the nuclear aspects of the facility and
14 it recognizes that as a part of doing that the relationship that
15 chemicals have with that process and the safety of that process have to
16 be considered.

17 In fact, in the ISA concept we have clearly identified the
18 fact that chemicals and their effect on safety have to be evaluated, and
19 if they have a detrimental effect on the nuclear or the safety of the
20 process then they come in this purview but we are not saying that a
21 little nitric acid burn or stain on somebody is not a nuclear -- is not
22 in the nuclear arena, so that is the distinction that we are trying to
23 get worked out in words, and you are right, Bill, the whole secret to
24 this thing is to go through the ISA and determine what the chemical
25 sensitivities are for each piece of the process, and then you have got
the answer.

MR. SHERR: Can I seek a clarification?

It's clear I think what Bill was addressing, but where a
chemical accident or chemical release, a potentially initiating event
that potentially causes a radioactive exposure, and it's clear --

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1 I think the real issue is in the area where the chemical
2 toxicity exposure -- okay, sorry.

3 The real issue is where the performance requirements deal
4 with the chemical toxicity effects. I think there is pretty much
5 agreement that the chemical toxicity associated with NRC licensure like
6 soluble uranium or the chemical toxicity associated with the reaction,
7 chemical reaction, of NRC licensed material is something else, like the
8 HF problem is clearly or is within the NRC bailiwick, and in fact it was
9 the second issue that led to the MOU being developed.

10 I think the point that I would like to get some
11 clarification here is to the degree to which there is any other chemical
12 toxicity exposure that you feel is within NRC jurisdiction and I asked
13 the question earlier about when the chemicals are mixed with the NRC
14 licensed material are we then concerned about the chemical toxicity
15 potential effects of those chemicals that happen to be commingled with
16 the NRC licensed material or do you view that as an OSHA responsibility?

17 MR. VAUGHAN: I think we pretty well believe that that is in
18 NRC space.

19 MR. SHERR: Okay.

20 MR. SHARKEY: Going on to (D) I guess, NEI proposed changing
21 the 70.60 chemical consequence limit for the public in addition to the
22 worker, which would not be protected by OSHA but presumably by EPA under
23 40 CFR Part 68.

24 NEI's basis for all the suggested changes appear to be the
25 NRC-OSHA relationship as defined in the MOU. What is the basis for the
changes to the public consequence limits?

MR. SILVERMAN: I thought I would take a crack at that one.

The NRC is correct in pointing out the distinction between
& OSHA coverage of worker safety and public safety. The OSHA MOU really
just implements the statutory authority of the agency and it is a way of

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1 describing in a little bit more detail the statutory authority of the
2 agency and we continue to think that even with respect to public
3 exposures the agency doesn't have the statutory authority to be
4 regulating purely chemical hazards.

5 So what we talk about, the OSHA-MOU, a lot as sort of a
6 shorthand phrase, we are really going back to the statute, so we think
7 it is the same rules and principles would apply to public exposures as
8 to worker exposures.

9 MR. SHARKEY: Okay, then, moving on to (E), how exactly does
10 NEI's proposal address the NRC-OSHA MOU Item (C), i.e., plant conditions
11 which affect the safety of radioactive materials and thus present an
12 increased radiation risk to workers?

13 I think we covered that already and agree that those
14 increased radiation risks, chemicals that would increase radiation
15 risks, would be subject to the NRC.

16 MR. MENDELSON: Can I go back to (C) for a second, just
17 want to get some clarification.

18 Again talking about the uranyl nitrate, as I understand --
19 correct me if I am wrong, but I understand that if a worker was burned
20 by the nitric acid before it goes into the process, it's clearly not NRC
21 jurisdiction, but if they're burned by the uranyl nitrate, that it is
22 NRC's?

23 MR. SHARKEY: That part isn't clear to me either.

24 MR. ELLIOTT: I think you would also have to look at whether
25 that consequence to that individual incapacitated that worker and
affected the safety of the operation.

MR. SHARKEY: I think --

MR. KILLAR: Irrespective of that, the injury to the worker
is not something that we regulate.

I may be talking a little bit out of school but I think it's

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1 a clear case and if radioactive material is involved, if it is in the
2 form of UNH, the NRC has jurisdiction.

3 If a worker gets burned with UNH, uranyl nitrate, what
4 happens is the first thing you have to worry about is the burn, but if
5 you have to send that individual off to a hospital, you have to worry
6 about contamination as well, in which case there is no question the NRC
7 has responsibilities.

8 I think in my perspective the answer to your question,
9 Barry, is if he's burned with nitric acid before there is radioactive
10 material involve, it's strictly an OSHA issue, but if he is burned with
11 that UNH afterwards, then it is an NRC issue.

12 MR. VAUGHAN: Let me just comment on what happens in the
13 real world now, and that is in those cases -- let's use the uranyl
14 nitrate case -- if we have an employee that suffers a chemical burn from
15 handling that uranyl nitrate, solution, it first is a chemical concern
16 under the OSHA regulations, and there is a complete system for all of
17 the recording and reporting of that information to OSHA.

18 Because there is nuclear material there, there is also a
19 potential for that, and there are internal procedures in NRC space for
20 how to deal with the radiological aspects of that particular injury in
21 terms of the person, his surroundings, and any transport and additional
22 handling that has to take place, so the real world, right this minute,
23 is a little bit fuzzy.

24 It seems to work but it's -- if you get to a point like
25 that, it's not always clear-cut even with the words in the MOU.

MS. EYCK: May I ask a question? If that individual was
identified as providing an administrative control, say, for criticality
or whatever, and the impact, the chemical impact on him and affecting
his ability to do his job in performing that function as part of that
control, what would your position be in that case?

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1 MR. SHARKEY: I think if he is relied on for safety, then
2 that is subject to the NRC's review -- purview.

3 MR. VAUGHAN: Yes, and I mean I guess you could get in a
4 position where a single individual performing a single function was
5 associated with a key criticality or radiological control, but that
6 scenario is very unlikely. There's aren't very many of those positions
7 around.

8 MR. COMFORT: I have got a question on (C) also, which
9 basically is if you determine a chemical could impact an NRC licensed
10 material through let's say an explosion, does that mean that NRC or do
11 you believe that NRC would be responsible for regulating the whole, all
12 aspects of that chemical or let's say that the chemical could also cause
13 some kind of occupational exposure which wouldn't impact, and so would
14 they not be regulating towards those occupational? -- just the safety
15 impact from the explosion.

16 MR. SHARKEY: You would not be regulating the chemical
17 aspects of the exposure, but if an explosion or fire could cause a
18 consequence of concern, then, yes, that would be within the NRC's
19 purview.

20 MR. COMFORT: Not the exposure?

21 MR. SHARKEY: Not the exposure itself, unless the individual
22 exposed was relied on for safety and prevented him from his performing
23 his safety function and, as Charlie said, those kind of controls for the
24 most part don't exist -- a single operator being totally relied on for
25 safety.

MS. GALLOWAY: Bill, I have a question.

Theoretically this definition -- I guess I am wondering
though how these various events could be viewed by NRC in a precursor
& sense?

If we have one event that, as our definitions discussed here

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1 today are clearly within OSHA space, wouldn't that though perhaps have
2 some implications for NRC further down the line as far as an indication
3 of an increased incident that might be in NRC space?

4 As a corollary to that, how -- well, answer that first, if
5 you will.

6 MR. SHARKEY: I'm not sure that I really understood what
7 your --

8 MR. KILLAR: Maybe I can give a quick answer.

9 First, one event would not be an indication of anything
10 until you did the root cause analysis to determine what was the reason
11 for that event, and then if that event was a potential -- could occur
12 again, you would go and take whatever protective steps you need to take
13 to make sure that doesn't occur in the future.

14 But lightening striking a tank and causing a tank to rupture
15 is not necessarily a precursor to other future events.

16 MS. GALLOWAY: Okay, but suppose you have the example where
17 there are perhaps programmatic issues such as training or procedure
18 deficiencies which he could have a relationship with the OSHA-specific
19 event and the NRC-specific event?

20 MR. SHARKEY: I guess the approach we would take -- let me
21 describe the way we envision, the way we are going it now is that while
22 you are doing your ISA you look at these initiating events and if one of
23 these initiating events could cause a consequence of concern you would
24 take some action to reduce the risk and by that risk reduction you would
25 be looking at your systems to ensure that you have -- if training is
part of it, then you would identify that training as important to safety
and provide adequate training, but we are not proposing that we generate
programmatic chemical safety requirements.

I think we envision that the ISA will determine what is
important to safety and that we'll address it according to the results

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1 of the ISA.

2 Now if a program were important and that is the way we
3 decided we were going to handle it, then that would be the item relied
4 on for safety, I guess.

5 MS. EYCK: And that sounds fine, but it would seem to me
6 that it's not as clear-cut differentiating.

7 I would like to say here that there may be given an event a
8 need for NRC to take a look at it to determine whether or not there are
9 generic implications that we are concerned about.

10 MR. VAUGHAN: If I can make a comment on this subject, the
11 events that we were just discussing are clearly precursor events.
12 There's no question about that, but the simple event doesn't tell you
13 enough to understand what the significance is and the significance of it
14 can only be developed in the context of the operating plant and
15 therefore the licensee needs a management system that captures all of
16 these precursor events whether they are nuclear or not, but related
17 events, and those get evaluated, investigated, root cause determined,
18 periodically reviewed for significance and corrective action, but that
19 needs to happen at the facility in the context of the operation with the
20 information that puts it into the proper format to be used.

21 Obviously I think the NRC would probably be interested in
22 the licensee's program to do that, but in terms of just reporting those
23 kinds of events and labeling them in some way precursor I am afraid
24 creates a false impression about the usefulness of that information.

25 MR. PERSINKO: Let me ask you, what is the practice right
now with your facilities when you investigate and do a root cause
analysis of a chemical accident incident?

Do your procedures have a specific clause in there to look
for programmatic, larger, bigger picture issues, or just -- such as
nuclear?

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1 MR. VAUGHAN: I can comment on our procedures, but I can't
2 comment on others.

3 Our management system requires the recording and reporting
4 of all unusual events and the operations people initiate those forms and
5 they prescribe or identify what actions they think are appropriate.

6 It is also reviewed independently by the environmental
7 health safety group, and they may call for additional actions to be
8 taken. Some of the simple ones are just an operations-led review, and
9 they define their corrective actions and do it, right up to a full-blown
10 independent root cause -- you know, tap root, root cause analysis.

11 All of the corrective actions go into a management tracking
12 system and are tracked through and our safety council or safety
13 committee. As one of the things that that committee does is
14 periodically look at the sequence of unusual events and incidents we
15 have had over the last period and look at those primarily to see if root
16 cause work has been effective and corrective action has been effective
17 or is there indication of a more widespread problem that really hadn't
18 been addressed by looking at the individual incident. That is what we
19 do.

20 MR. PERSINKO: Is that common among all the facilities?

21 MR. VAUGHAN: Yes.

22 MR. GOODWIN: That is very similar to what we do at
23 Westinghouse, but I do want to underscore the fact that we do not just
24 look at the specific incident, as Charlie said. We try to look at if it
25 happened on a particular process line, we look at all the other process
lines with similar types of equipment.

We also look at administrative controls, management
controls, you know, anything that could have any bearing on the
situation whatsoever, so it is a broad-based root cause analysis
approach process.

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1 MR. SHARKEY: I guess root cause is, in our system it's one
2 of the tools, and so when you get to significant issues you go into the
3 root cause.

4 You can do problem solving without doing root cause, a
5 formal root cause analysis, so there is kind of a graded approach based
6 on the significance of the occurrence, so in ABB's case it is similar to
7 what Charlie described.

8 We all have systems in place.

9 MR. ELLIOTT: These types of management control systems are
10 also required by our license.

11 DR. PAPERIELLO: I have a question. If I take a look at the
12 [November 4th letter](#) to me from NEI, with the proposed words for your
13 views on chemical safety, I would like to ask the people across the room
14 -- Do you all support this? Is there somebody -- anybody there who
15 disagrees with what was sent to me?

16 [No response.]

17 DR. PAPERIELLO: My concern right now is this was
18 represented to me as the industry's position. I just wanted to make
19 sure that is, because let me tell you what I heard today, and I want to
20 kind of wrap up where I stand on this, and I do want to talk to the
21 Commission about it. We got to where we are today for a variety of
22 historic reasons. I want to consider what I was told. I would like to
23 know more about what [OSHA](#) and [EPA](#) have in place. I would like to know
24 what the rules are. I want to know what the practices are.

25 I would like to probably have OSHA take a look at the words
you have presented to us to see what they think about how that affects
the MOU and then consult with the Commission, and, of course, consult
with my own staff, just to see where we come out. I just want to make
sure that I don't find out at a later date that I don't really have the
industry support for the words that are in the NEI submittal.

1 MR. GOODWIN: I think certainly I can speak for
2 Westinghouse, we are in full agreement with the letter that was
3 submitted to you.

4 DR. PAPERIELLO: Okay.

5 MR. GOODWIN: And my understanding, we have consensus on
6 that. I will let someone else, you know, speak for themselves.

7 MR. VAUGHAN: GE feels the same way.

8 MR. EDGAR: I think Siemens does, too.

9 MR. ELLIOTT: We are okay with it.

10 MR. SHARKEY: ABB, we support it, although, personally, I
11 don't agree with a lot of things, but as a company --

12 DR. PAPERIELLO: Yeah, I --

13 MR. SHARKEY: I think, in the back, Garrett and Don could
14 attest to that. We have had a lot of debate on what is covered and we
15 have got a long history of paper, too, between us in the chemical safety
16 area. But, as a company, I think we are supportive.

17 DR. PAPERIELLO: I frequently have my staff at the
18 Commission convince me of the righteousness of something I don't originally
19 agree with, so I know how that stands. Okay.

20 Unless there's anything else, why don't we move on.

21 MR. GOODWIN: If I may digress just a moment and make one
22 clarifying comment. In the section or the slide where we were talking
23 about the industry's proposal for removing the guideline tables from the
24 rule, the other suggestion was to add the one hour duration to that. I
25 might point out that in the proposed rule, in the definition section,
the one hour limit was included for the ERPGs, but it was not for the
AEGLs, and I believe -- I suspect that was just an oversight.

DR. PAPERIELLO: Probably.

MR. GOODWIN: So all we are saying is put the one hour
duration in both cases there.

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1 DR. PAPERIELLO: Good. I think it was very useful.

2 MR. SILVERMAN: I apologize to belabor it. One more just
3 real clarifying comments.

4 DR. PAPERIELLO: That's fine.

5 MR. SILVERMAN: We gave a lot of proposed changes that were
6 suggested. They are very repetitive. It is just the same sorts of
7 language you are seeing over and over again as being modest changes in
8 the rule. The real central part of this was the listing in the rule of
9 the concentrations of concern.

10 As the rule was written before, it appeared to us that a
11 concentration of concern, subject to NRC jurisdiction, could be
12 construed to be a purely chemical hazard. It had no relation to
13 radiological safety at all. And, really, what we were trying to do, in
14 large measure, was -- and that is the fourth category, [item D](#) under the
15 NRC-OSHA MOU, that is what we were trying to remove. So when you see
16 our language, particularly in Section 70.60(b), consequences of concern,
17 that is really what we are trying to accomplish, is to make it clear
18 that that is the one area that is not covered by NRC.

19 MR. SHERR: If there are no more comments, I suggest that we
20 take this opportunity to take our break and we will reconvene in 15
21 minutes, 10:20 according to my watch.

22 [Recess.]

23 MR. SHERR: The next agenda item is Standard Review Plan
24 Issues and, as I had indicated earlier, one of the -- NEI has provided
25 us detailed comments on the views on that, and Felix will covering the
issue.

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MR. KILLAR: Thank you. Before I start to talk about the
Standard Review Plan, I do want to take just a few minutes to provide a
little bit of a response for the pregnant pause that went on a little
earlier when Carl asked the question -- Do the members sitting at the

1 table support the letter that NEI sent in?

2 NEI, as any association, works on a consensus process. We
3 put a group together, develop a response to an issue, a position from
4 the industry. We that position together, send it back out to the
5 members to get their concurrence and support of that position. And
6 then, with that concurrent support, we send it in the to the NRC.

7 Now, there is, typically, something that someone doesn't
8 quite agree with, although they agree with the principle, but they may
9 not necessarily agree with one minor aspect of it, but they are willing
10 to go along with it for the good of it all, so to speak. I think part
11 of the reason why they didn't step up and say, yes, we support that
12 letter is because they are looking for NEI to do that, and I was sitting
13 here looking for them to say, yes, I support the letter that NEI sent
14 it. So, it was not a reflection of, no, they don't support our letters
15 and we go out and send these letters in arbitrarily, it was just a
16 matter of who is going to take the lead in responding. And so don't --
17 it is not indicative that they don't support the letters that NEI sends
18 in.

19 Okay, with that, I would like to go ahead and move into the
20 [Standard Review Plan Issues](#). And what this came out of was the
21 September meeting, the question came up about the Standard Review Plan.
22 We indicated that there was a lot of programmatic requirements in there
23 that we felt may be going beyond what was in the rule and, also, we
24 questioned some of the basis for those requirements. We requested --
25 put together some of the issues and we kind of identified sort of what
was our top 10 of these.

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And of the basic or fundamental problems we had with the
Standard Review Plan as currently drafted is that the Standard Review
Plan doesn't take into consideration, when you look at the various
programs, how those programs relate to the ISA. And this has always

1 been a contention with the industry, back, oh, probably four, five years
2 ago, when we started to just do a review of the Standard Review Plan for
3 Part 70, before we even thought about the Integrated Safety Assessment.

4 We had a series of meetings with the staff where we brought
5 up questions on typical parts of the Standard Review Plan, quality
6 assurance, fire protection and what have you, and we pointed out to the
7 staff at the time that you need to pool all these together. You need to
8 have that integration. Just having requirements for a quality assurance
9 program, or requirements for a fire protection program or a chemical
10 safety program, without having the relationship to other programs and
11 the operations of the facility is not very meaningful. And what we are
12 seeing in this Standard Review Plan is we are seeing that that still has
13 not been conveyed in the Standard Review Plan. Maybe it is in the minds
14 of the NRC staff, but from our review, it isn't.

15 And, so, what I am saying here in the first bullet here is
16 the need for the programs must be identified. Why do you have to have a
17 chemical safety program? Why do you have to have a fire safety program?
18 Things on that line.

19 Then, secondly, once you identify, through ISA process, and
20 you have to have a fire, or a chemical, or a training program, or
21 something along that line, what is the depth of that program? You know,
22 do you need a program that goes a whole nine yards, or do you just need
23 a basic program just to cover the basics, because that is the only thing
24 that you are worried about?

25 Once again, we don't see that the Standard Review Plan has
taken that into consideration. And, so, what we are saying down here is
that the Standard Review Plan prejudices a need for the programs because
it does not give the link back to the ISA and the requirements
& identified in the ISA for the program.

Secondly, the Standard Review Plan prejudices the depths of

1 the requirements for the program. The acceptance criteria, in a lot of
2 instances, are acceptance criteria which is up here, where maybe, from
3 the ISA, you only need acceptance criteria that is down at this level
4 here. And so what we need in the -- from the overview of the Standard
5 Review Plan, and looking at these various programmatic requirements, is
6 that they be integrated with the Integrated Safety Assessment, and the
7 needs or the depths of that program be identified through the ISA.

8 And, basically, what the balance of this is, is just the
9 examples of what we are saying.

10 The SRP 11-3 quality assurance criteria. The draft includes
11 the criteria for the licensee to have program requirements similar to
12 ISA -- NQA-1. NQA-1 certainly is applicable if you have something that
13 is such a safety consideration that you have to have detailed quality
14 assurance program requirements on it, but for the vast number of our
15 requirements, the number of our operations, the full NQA-1 requirements
16 are not going to be applicable.

17 By having this established in the Standard Review Plan, you
18 have now started with the bar up here that the licensee has to meet,
19 because the reviewer is going to be looking for something similar to an
20 NQA-1 type program, and an NQA-1 program will not be needed in any of
21 these areas, and the ISA has identified that. But without that link to
22 the ISA, the reviewer will be now looking for something along these
23 lines.

24 In training qualifications, we have sort of two issues here.
25 First, the issue that they are looking for a systems approach to
training. Once again, a systems approach to training may be required if
you have a lot of training requirements for your operators, to assure
the operations, and you want to -- you need to do a systems approach to
& training. But if you make your systems and design your systems such
that you have minimal operator intervention, then detailed training

1 would not necessarily be needed for the operators. But by establishing
2 the bar at the level of having -- or mentioned a systems approach to
3 training, now, the licensee has an obligation to come up with some type
4 of training program, or explain why he doesn't need that level of depth
5 of a training program.

6 There is another issue with this that I didn't put on the
7 slide, and this is at the -- they also talk about the qualifications and
8 training of the operators for design and construction of the facility.
9 Once again, the design and construction of the facility and training of
10 the people for doing that would not be something that would normally be
11 under the purview of the NRC, and we question why that would be in the
12 Standard Review Plan. That goes beyond what the basic requirements of
13 the regulation are.

14 And fire safety, once again, this is an indication, where
15 you talk about the fire protection program, fire hazards analysis and
16 developing specific pre-fire plans. Certainly, you are going to do --
17 as far as your Integrated Safety Assessment, determine what the fire
18 requirements are and hazards analysis for fire are. But do you need to
19 go into the detail that is established by these various programs? And,
20 so, once again, the bar has already been set up high here for what is
21 needed in a fire safety program and then it will be up to the licensees
22 to justify why something less than that is needed. And we feel that the
23 obligation that the Standard Review Plan, by having things like that in
24 there, go beyond the rule and they actually make it difficult for the
25 licensee, and you get into a lot of discussions that need to be done.

On decommissioning we have a different, a little bit
different issue here, in that we are questioning what the intent of this
part of the Standard Review Plan is. If you look at 70.25, the
requirements, current requirements, as part of the license application,
you have to provide a decommissioning funding plan that is supported by

1 a cost analysis.

2 However, if you look at what is in the Standard Review Plan,
3 they are looking for more things that are analogous to 70.38, which deal
4 with license termination, and we are not terminating a licensee right
5 now, we are just beginning to operate the facility. To try and do a
6 detailed decommissioning plan now, according to 70.38, and the various
7 Reg. Guides that are supported by it, is -- well, it is beyond reason at
8 this point in time.

9 If the facility is 20 to 30 years from closure, doing a
10 detailed decommissioning plan and going through the cost and analysis to
11 do that type of decommissioning plan doesn't make a whole lot of sense.
12 Certainly, doing a decommissioning funding plan and a cost analysis that
13 supports that funding plan is appropriate and we feel that is
14 reasonable. But, certainly, not the requirements as currently put in
15 the SRP 10 dealing with decommissioning.

16 Once again, this is back to the earlier points on the [human](#)
17 [system interface](#). Certainly, human system interface is important. The
18 importance of it, though, is going to be dictated by the Integrated
19 Safety Assessment. Do you need to have a formal evaluation process for
20 the human system interface if you have minimal human systems interfaces
21 that occur?

22 Secondly, this goes once again, also, to some of the design
23 and operations of the facility and maintenance of the human system
24 interface. Once again, if the Integrated Safety Assessment dictates
25 that you need such a program, then you would put such a program in.
However, to have this identified as the preferred program or the
acceptance criteria in the SRP, you have established a bar that the
licensee should not have to go over that bar. And so you have put the
level -- or unlevelled the playing field from the perspective of the
licensee.

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1 Emergency management. Once again, this is similar. The
2 biggest concern we have here is that currently the licensee is obligated
3 to make sure that any off-site response teams are knowledgeable of the
4 facility and unique hazards. What has happened in the draft SRP is that
5 you are now going on to specific training requirements for the off-site
6 response team.

7 You know, we certainly can help them and work them as far as
8 developing training that they feel is appropriate, but to do the
9 specific training for them, you know, we may do something that, because
10 of a unique hazard that may be involved, that they may not encounter,
11 but most response -- off-site response teams have their own training
12 programs and do cover all the issues. The only other thing -- and even
13 radiation today is not unique, because of the transportation issue and
14 stuff. So, to have the licensee do training and training requirements
15 for off-site response teams is not within reason.

16 On this one here, we are kind of at a confusion factor.
17 Configuration management, and here what we are concerned about is the
18 idea to reconstitute the designs. When you do your ISA, you are
19 constituting the design, so there isn't going to be a design to
20 reconstitute, because you have already put it together when you did the
21 ISA. And, so, we are not exactly sure what the expectations of the
22 reviewer would be for the required reconstitution of the design.

23 And, once again, it is going to be an issue between the
24 licensee and the NRC reviewer to try and define what that is and what
25 you are trying to do there. The ISA will provide you the complete
design for the facility and all the safety applications, so there isn't
any design to reconstitute or reconstruct.

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 Once again, this is another one where the bar is higher than
we feel it should be. When you talk about maintenance and the
maintenance program, the maintenance program that is required to support

1 the safety systems will be defined through Integrated Safety Assessment.
2 If you find that testing your ratchet rings on an annual basis and
3 maintaining the level of them, or what-have-you, is appropriate, then an
4 annual maintenance program will be dictated for those through the ISA,
5 similar to a pump or some other system in the facility.

6 If the reliability of that pump or system is such that it
7 must be available a certain number of hours per year or what-have-you,
8 the maintenance program will be designed to it. However, to go in here
9 and talk about doing functional testing requirements and things on that
10 line, regardless of whether -- the safety significance of the equipment,
11 it causes concern in trying to develop a program that isn't linked and
12 developed through the Integrated Safety Assessment.

13 Organization and administration. Once again, a similar
14 concern, and this goes mainly, once again, to the design and
15 construction of the facility. Certainly, we will put together the
16 appropriate teams for doing that, and the Integrated Safety Assessment
17 will do the evaluations of what is appropriate for the design and
18 construction of the facility and the safe operations of it. But do we
19 need to get into this kind of detail in the Standard Review Plan,
20 particularly for facilities that are up and operating?

21 So these are the basic concerns we have, is the height the
22 bar has been started at in the SRP and the lack of the integration of
23 the various -- all these various programs linking that back to the
24 Integrated Safety Assessment.

25 The last one I wanted to talk about, and I will use this as
an opportunity to lead into the next topic, and that is the criticality
safety issue. And the issue we have here is that the criticality safety
ANN program goes, as defined in the Standard Review Plan, goes beyond and is
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ATE is that the NRC, through the Standard Review Plan, is propagating new

1 standards and requirements that are beyond the norm for the industry, as
2 well as for the nation, as the ANSI standards are followed by DOE as
3 well as the licensees.

4 Before we go on to discuss criticality safety in detail, I
5 thought I would take a few minutes to answer any questions you may have
6 about the various Standard Review Plan points we raised on the
7 discussion. Yes, ma'am.

8 MS. EYCK: I would just like to make a couple of comments
9 regarding what our philosophy was in developing these SRP and how it
10 relates to the issues that you have mentioned. Basically, our approach
11 was to base it on the ISA and that the ISA would identify the items it
12 relied on for safety, and then the SRP -- and the ISA would identify
13 what measures needed -- you know, what the items relied on for safety,
14 and then the measures that were in place would support the availability
15 and reliability of those items.

16 Now, recognizing that the ISAs for each facility will vary,
17 and the risks of the items that are relied on for safety, or the risks
18 that they are protecting against also varies, we developed the SRP to
19 address the high risk items, because, recognizing we are going to be
20 grading it, we couldn't come up with graded criteria that would identify
21 or be appropriate for all the strata that may be representative of the
22 various risks that were developed through the ISAs of the facility. And
23 we tried to explain that in the introduction of the ISA -- I mean of the
24 SRP.

25 And I would just to read a couple of things that reflect
your comments that the SRP is not linked to the ISA. On [page 2](#) of the
ISA -- I mean of the SRP, I'm sorry, it says, "The applicant's
Integrated Safety Assessment is the central focus for the selection of
design and operational safety measures," now, these are the things that
you have been referring to, "and the management control systems that

1 assure the availability and reliability of those measures. It is the
2 ISA that provides a comprehensive evaluation and presentation, useful to
3 both the applicant and the NRC, of the distribution of risk among the
4 many activities ongoing at a fuel cycle facility.

5 "The NRC expects to be able to use the ISA results to focus
6 its resources on the dominant risks of facility design and operation,
7 and the safety controls and assurances necessary to assure that those
8 controls remain available and reliable.

9 "Accordingly, staff reviewers will conduct a coordinated
10 review of the ISA and will focus on the ISA results applicable to each
11 of the technical areas treated in the chapters of the SRP. The
12 acceptance criteria in each of the SRP chapters are the criteria that
13 apply to the dominant risks of operation. The applicant has the
14 opportunity to justify lesser criteria for those design and operational
15 features that can be shown to represent lesser risks than the accident
16 or failure sequences that pose the dominant risks."

17 Our focus here was to say that these measures that you have
18 identified are not to apply across the board. They are only to apply on
19 the items that are relied on for safety and that the licensees are given
20 the opportunity to provide the graded measures that they feel are
21 appropriate based on their ISA.

22 Now, maybe we didn't articulate that well enough, and I am
23 looking to ask you to tell me why you didn't, when reading this, get the
24 focus that we are linking the SRP to the ISA findings, and that we
25 couldn't provide criteria that would grade every application. And so
what we did was we put the criteria that would apply to the high risk
items, for any program that could be used for any facility, whether it
is a current facility, whether it is LEU, whether it is HU, whether it
is a new activity that we would be licensing, but the recognition that
these were just criteria that would be, you know, used from a review

1 point of view.

2 It also says in the [introductory](#), it says, "The acceptance
3 criteria delineated in this SRP is intended to communicate the
4 underlying objectives, but not to represent the only means of satisfying
5 the objective." So, I am looking to you to say, where could we -- how
6 could we have communicated more clearly what our intent was?

7 MR. KILLAR: Okay. There's two things. Start off with the
8 very last line, not the one that you had underlined that you read. You
9 say that this criteria is such-and-such and the licensee can use
10 something lesser. What that says to us is that we have to justify why
11 we using something lesser. And what we are saying is that the ISA
12 should demonstrate that we don't need something as high as what you are
13 providing for, and, so, therefore, we can start with the lower level and
14 work up. And, so, you know, licensee already is in sort of a defensive
15 mode as far as defending why he is doing something lesser than what your
16 acceptance criteria is in the SRP.

17 The second issue we have as far as the way SRP is laid out
18 is that, well, this is in [Chapter 2](#) and you look at [Chapter 3](#) and read
19 the appendix to Chapter 3, you finally get a sense of what you are
20 trying to, but it is buried in the appendix to Chapter 3 as far as the
21 grading and the approach and things on that line. And this is something
22 we feel should be spelled out at the beginning of each chapter of the
23 ISA -- I mean of each chapter of the SRP, because we look at the way you
24 do work and maybe we have a different perspective or a jaded perspective
25 of it.

But we see -- the project manager gets the application and
he breaks up the radiation protection section and he gives it to this
guy, and he gives the chemical safety section to this guy over here, and
he gives the other section other there to the health physics guy, and
they go off with just that section of the SRP, and they are reviewing

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1 this against the radiation protection program, against that section of
2 the SRP, and we are not sure that they are going to understand the
3 relationship of that radiation protection program to the criticality
4 section, to the fire safety, to the chemical safety sections, unless it
5 is brought to their attention that they have to look at this as it
6 relates to the other programs and it is an integrated program. Because
7 there are times when they say, well, gee, you could do things a lot
8 better here in this area, and we say, yes, but if we did it better in
9 this area, it is going to cause us a greater risk in this area over
10 here.

11 And, so, you have to look at, even though you look at the
12 individual programs, you have to look at the integration as a whole.
13 You can't break these separate programs out, and that is our concern, is
14 that when the NRC reviews these applications, that is the mode they are
15 going to go into is looking at the individual programs.

16 DR. PAPERIELLO: Let me ask you this. Let's pick something
17 out, let's talk about training.

18 How would you have me configure the SRP to address training?

19 MR. KILLAR: I would think that what you'd want to say in
20 there is the exceptions criteria would be driven by those training
21 requirements identified by the licensee to assure the safe operations of
22 the high-risk items identified where training is essential. It sounds
23 like a little dance, but basically what we're saying is --

24 DR. PAPERIELLO: Let's follow the path. Okay. And how
25 would the reviewer know what the high-risk areas were?

MR. KILLAR: From reviewing the integrated safety
assessment.

DR. PAPERIELLO: But the point is the integrated safety
assessment's not going to be submitted.

MR. KILLAR: The summary integrated safety assessment is to

1 be delivered on the docket.

2 DR. PAPERIELLO: So there will be sufficient information in
3 the summary to justify the programs. I mean, I may be getting ahead of
4 myself, but part of this fits together. I mean, part of it is fitting
5 what we're trying to do as we move from what I call a deterministic
6 basis, because that's in fact what you're talking about -- in other
7 words, if I turn around and say you've got to have a training program
8 that does whatever number of things without regard to the ISA, that
9 would be deterministic more or less, which is the way we've
10 traditionally done things, to one that is ISA risk-based.

11 There's still -- see, there's the issue of the public
12 involvement. The fact of the matter is the decisions we make need to be
13 scrutable to the public. It's one thing if I say the acceptance
14 criteria is based on an ANSI standard, QA, we're just going to follow
15 the ANSI standard. The public can say yes, I understand why you
16 licensed them, because they have a QA program that matches what the ANSI
17 standard says. If you're saying that well, we don't really need all
18 that because when we do the risk analysis, in principle the public ought
19 to be able to say we've looked at the risk analysis and we agree.

20 I mean, I recognize that many members of the public aren't
21 going to be able to read and understand what we write. I mean, you
22 know, they just don't have the technical background. But in principle
23 everything we do ought to be scrutable to an informed member of the
24 public, and that's part of the problem I can see is that it's -- I mean,
25 my difficulty is fitting them together when in fact, I mean, I think
it's -- I mean, if I look at the SRM and things like that in fact is
going to be where we leave right now very difficult to make the ISA the
basis for a lot of regulatory decisions insofar as we don't have a
& docketed ISA.

And I'm not saying docket the whole ISA, I'm just saying if

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1 that is the basis for making a regulatory decision, and that decision is
2 to be scrutable by the public, we have to have enough information so an
3 informed member of the public can see the basis for what we have
4 concluded. Either that or we're basically left with a back to a
5 deterministic licensing basis which clearly is scrutable to the public,
6 and then with sort of an overlay of an ISA. I mean, that's kind of the
7 problem I have right now.

8 MR. KILLAR: Right. And when we get into the discussion
9 later, I don't know if we'll get into it today or tomorrow, dealing with
10 the integrated safety assessment and how this process works together, I
11 think it'll -- hopefully it'll make more -- gel more as far as how we
12 view this. When we look at the license, we will have program
13 commitments in the license that we will have a criticality safe room, we
14 will have a radiation protection program, and these will be the
15 principal attributes that we will follow for that criticality program
16 for that radiation program.

17 If we determine through the integrated safety assessment
18 that we need to have a fire protection program, we will have a
19 commitment to have a fire protection program, and what the attributes of
20 that fire protection program will be. Similarly for a chemical safety
21 program.

22 And then through the ISA summary, which we are planning to
23 submit, on the docket but not part of the license, the summary will
24 demonstrate how these programs and these attributes are carried out on
25 the items of safety significance to assure the reliability and
availability for providing the protection for the workers and the
public. That's our vision of how this process will work.

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DR. PAPERIELLO: We're close. The devil is going to be in
the details.

MR. KILLAR: Yes. And that's really where the issue is. To

1 us the issue is how much do we get in the ISA summary that is clear,
2 concise, and gives you what you need to feel comfortable that we're
3 running our facilities safely, at the same time give you enough
4 information to demonstrate to the public that you've done and
5 accomplished your job, but at the same time not overburden you or
6 overburden us with a bunch of detailed analysis which, you know, maybe a
7 couple old techies can understand but beyond that not a whole lot of
8 people can really comprehend.

9 MR. SHERR: A point of clarification.

10 MR. KILLAR: Yes, sir.

11 MR. SHERR: And this may be a minor point. When we had
12 discussion in the 1995 time frame, one of the concerns that the
13 industry, and a very strong concern, was us calling fire safety or
14 radiation protection, calling them programs, because the notion was that
15 there should be one combined safety program, and we have tried
16 religiously to avoid the use of the word "program" in this subset in
17 response to those comments. Have you used the term "program"
18 consistently? Has there been a change in views on that? I mean --

19 MR. KILLAR: Maybe I'll hide this time. I'm not sure.
20 Maybe I ought to -- Charlie or --

21 MR. VAUGHAN: Yes, I wanted to talk about the other thing
22 for a minute, too, but I'll just go ahead -- I'll just talk about this
23 one right this second.

24 We may have been a little misunderstood because we weren't
25 seeming to get across our point on programs. There in my mind is a
particular distinction, and that is in the area of fire protection, in
the area of chemical safety, in the area of maintenance of the plant, in
terms of assurance at the plant, and a lot of those particular things
& there is nothing special that a business faces in those areas in a
nuclear sense.

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1 In other words, every business has to have those kinds of
2 programs in place, and those programs have to operate, and therefore we
3 felt it was unnecessary to have to provide extensive amounts of
4 programmatic information with regard to those because we as an industry
5 follow pretty much the industry practice.

6 On the other hand, though, we do have to be able to show
7 that we have factored those things into our nuclear operation, and in
8 our proposal to incorporate the use of ISAs to bring all of that
9 together and integrate it and drive the safety in the nuclear facility
10 we felt like we were doing that.

11 But we also recognize that we are a special industry, and
12 there are a couple of special things like the radiological protection
13 and criticality safety that are particularly unique to the nuclear
14 operation, and therefore in those areas in fact there does need to be a
15 programmatic definition that covers that particular subject. And
16 obviously since this license is a contract between management, then
17 there needs to be a good, solid, you know, communication of the
18 management structure and the management interaction and how that works
19 as well as what the license activities are and so forth. So we may have
20 been guilty of giving a couple of different opinions, but I think this
21 is kind of where we are in the overall thinking.

22 MS. EYCK: I'd like to go back to the question of the SRP,
23 and still on my mind trying to figure out how we can package it to --
24 and describe it to be something that would be acceptable to you and that
25 would be understood what our perceptions are.

 You've mentioned before that you felt that the SRP was too
prescriptive, and some of the requirements were too stringent. I guess
my one thought is, are you saying that you feel that that would be, if
that is the case for high-risk activities that might involve HEU or
something -- I'm trying to think, because we've got an SRP that, as we

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1 all recognize, Part 70 covers a broad spectrum of different licensed
2 activities.

3 And then you mentioned the fact that you were concerned of
4 justifying the lesser -- use of the lesser criteria. Is one proposed
5 approach that you would recognize that in each chapter at the beginning
6 of the chapter we recognize that the criteria contained then could apply
7 to a wide spectrum of risks, and not ask the licensee to justify their
8 lesser criteria but just to identify their program, and then the
9 licensing reviewer, who is using this guidance, will look, based on the
10 ISA results, and how this particular item relied on for safety, plays in
11 the risk realm, that then they would make the judgement that yes, your
12 proposed program is acceptable using the criteria, and the reviewer
13 would then make the graded determination that your proposed approach is
14 acceptable based on the risk of the item that we're dealing with? Is
15 that something that, you know, that is addressing your concerns?

16 I'm just trying to figure out how do we solve this problem,
17 because recognizing that this is a NRC guidance document for our
18 reviewers, we're sharing it with you to let you know what our
19 expectations would be in certain areas and the different types of
20 attributes and characteristics of the measures that you would propose,
21 how they play in our review. But recognizing also that we need an SRP
22 that does cover a range of risks for these items relied on for safety,
23 and recognizing that we're going to be trying to tailor SRPs for
24 different types of activities like if we license a MOX facility we're
25 going to have an SRP that's tailored to the MOX activity or analogous
activity.

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But we felt that the Part 70 SRP in general gave us a good
foundation to have as acceptance criteria and to be used as a kind of a
basis to make that tailoring. And so I'm interested in what you see is
the way that we can proceed and what might be some of the proposed

1 solutions to, you know, what your concerns are.

2 MR. VAUGHAN: I'll just address part of that. You read a
3 section out of the introduction a while ago that I think most of the
4 people in industry when they read it felt pretty good about what was
5 being said there, and the problem came when we went to all of the rest
6 of the chapters, and when we read those chapters, they don't add up to
7 us to be what that statement said.

8 Now the question is, is -- the major problem -- there's I
9 guess a couple of major problems. One is these chapters in a number of
10 cases tend to add prescriptive detail that we think -- or imply
11 prescriptive detail even though they're guidance that we don't think is
12 necessarily appropriate. And the other thing is is every one of the
13 chapters seem to be written with a bar at the highest level, and there
14 is no guidance in there to a reviewer in terms of how to deal with
15 things that may not be at that level.

16 So I think what has to happen is the chapters need to be
17 fixed. If you want to set the bar at the upper end, which I mean you
18 can do that, but if it done that way, then there needs to be guidance in
19 there to the reviewer about how to adjudge a person's performance
20 relative to that bar depending on their individual facility and the
21 situation that's being reviewed.

22 MR. KILLAR: Bob?

23 MR. PIERSON: I just wanted to mention a couple of things
24 about the standard review plan. Once something is identified as safety
25 related by the ISA, then you start looking at the attributes and decide
what you need to assure that safety related --

THE REPORTER: Please speak into the mike.

MR. PIERSON: When you do that, then you default back to the
standard review plan.

Now, as an example, on training, it was never our intention,

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1 and if it's decided that training is necessary to assure safety of an
2 ISA attribute, that one would have to go through that entire spectrum of
3 attributes listed in the [training chapter](#) to maintain that training.
4 That's just given as a guidance to the reviewer that here's a process
5 that you can go through, and this represents the high bar. In other
6 words, we don't want the reviewer to ask for more than that under any
7 circumstance. But there can be a case made to accept less than that.
8 The same thing would be the case for quality assurance or any of the
9 other areas.

10 So it's interesting, sitting here listening to this, because
11 when we wrote that, we were writing it as a constraint document to give
12 to the staff so that we didn't -- so that, one, there was some
13 predictability and the reviews were done in a systematic process, and
14 they wouldn't go beyond a certain constraint. And it's interesting that
15 you interpret it to mean that we go through all those processes for
16 everything, because that was never the intention. But I guess we
17 probably need to add some words to that effect that -- for the default
18 mechanism.

19 But as an example -- brought up with the -- Liz was talking
20 about, it's very difficult to a priori predict all the particular
21 attributes that one may or may not need. I think you've got to give the
22 reviewer some discretion and the licensee -- and the potential licensee
23 some discretion, because we can't predict all the potentialities we
24 have, can't say if it's sometimes relied on for safety but not really
25 all that important, we do x, but if it's really relied on for safety, we
do y, and if it's really, really relied on for safety, we do the full
gamut. That's not going to work that way.

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So I think that we can probably put some words in there to
guide the staff to say that this represents the entire set and that
subset of that may be appropriate in some instances. But I guess just

1 philosophically speaking we're trying to tell the staff that we don't
2 want you going beyond these requirements we've laid out here for
3 anything that you may provide.

4 MR. KILLAR: I understand what you're saying, Bob, and I
5 appreciate it. I guess one of the concerns I have is if you look at a
6 reg guide and the way it reads and what have you, some of the opening
7 words are to the effect that this is viewed as an acceptable way of
8 meeting the requirements as identified in the rule, and so basically
9 what that says to us as a licensee, that if we do everything that's
10 here, the NRC will accept it.

11 But what's happened in practice is that when we say well,
12 we're not going to do everything that's in here because we don't need to
13 do all that, we end up into a long contest going back and forth with the
14 reviewer why we need to do things less. And while I understand what
15 you're saying that's the upper bar to limit the reviewer, what we find
16 is that's sort of the starting point, and then we have to argue down
17 from there.

18 MR. PIERSON: What we would hope is that the integrated
19 safety analysis process would separate that out. But the idea of the
20 license application comes in, we would look at the integrated safety
21 analysis, and define from the integrated safety analysis how we would
22 do -- attributes that reflected -- to bolster the integrated safety. So
23 it's not quite as implied earlier where you just take a chapter and give
24 it -- you really need to integrate that.

25 And what we're trying to accomplish here is flexibility, as
Carl said, because if you don't allow some latitude in terms of how you
can interpret what's needed for safety, you could come up hypothetically
with a scenario that you don't want to have a training program. You've
& made a decision you don't want training programs, if you put some other
ASS sort of redundancy in there and don't have training programs and rely on
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1 something else for safety and use that as part of your ISA. Conversely
2 you decide rather than using some other features, you want to have
3 training.

4 We wanted to allow that flexibility. The standard review
5 plan is an attempt to capture that I guess probably because of
6 historical factors. We're going to be looking at it with some
7 trepidation, but I would suggest that really that represents a box that
8 we want the staff to not go beyond that box, and we can always reduce
9 the variable, intending to work down.

10 MR. SILVERMAN: I guess I'm a little concerned that there's
11 a sense that the comments that I think -- what the industry's trying to
12 say in the comments that have been submitted could be addressed with
13 some simple clarifying language or packaging of the document. If I
14 understand what we're trying to say, it's much more substantive than
15 that. The concern is much more substantive. It doesn't go to the
16 introductory language of the SRP. The language that you mention, Liz, I
17 think we all think we understand and it makes good sense, that language.
18 I think we think it's relatively clear.

19 The problem is that even -- is that when you look in the
20 individual chapters of the SRP, even for a high-risk system, defined by
21 a particular ISA, the SRP says that -- or seems to strongly suggest that
22 for such a system a licensee is going to have to adopt such things --
23 pardon the expression -- as a systems approach to training or use NQA-1
24 or -- those are my best examples. There are many others that we listed.

25 Those are entirely new concepts. They raise the bar above
the existing practice. Think about NQA-1 for a second or a systems
approach to training. These are things that would be the subject of an
individual rulemaking, a significant rulemaking, in and of themselves if
& you were applying them for the first time to a facility.

Say you wanted to now establish NQA-1 as a requirement for

1 source material licensees or medical licensees. That would be a very
2 significant change in the way they do business. The problem that we
3 have here is to me there are a whole host of areas in here that in and
4 of themselves really should be the subject of rulemaking. They go well
5 beyond the existing practices. And a good example -- and they do
6 prejudge the outcome.

7 A good example is the training area. Let's say a licensee
8 goes out, performs an ISA on a particular system or process, and they
9 discover there is a problem of vulnerability. The risk is too high
10 based upon the existing system, program, procedures that they have in
11 place. They examine this and they discover that one of the problems is
12 there's a training problem, or the vulnerability issue could be
13 corrected by training an individual in a different way or more
14 thoroughly, okay, because that person is relied upon for safety.

15 That licensee might conclude that to solve that problem all
16 he might possibly have to do is improve -- is retrain individuals,
17 improve the qualification requirements, perhaps individuals, revise the
18 training modules themselves, have more testing and qualification of
19 individuals, those sorts of things, within the bounds of their existing
20 program. And that might be sufficient to solve that problem. But when
21 you -- that's within the bounds of their existing program.

22 It might not be sufficient. Maybe more would be required.
23 But when you read the ISA -- I'm sorry, when you read the SRP in the
24 training area, it seems to say that that kind of a high-risk system you
25 have to have a systems approach to training. That's a major, major
change. And NQA-1 is another example, and we think many of these areas
are like that. So it's a substantive issue. It's more than just the
packaging of the document.

MR. PIERSON: It may read that way, and if so, it's -- the
intention was that if you're in a situation -- a systems approach to

1 training would be an acceptable means of accomplishing that. But
2 something less than that, if you substantiate or justify why you're
3 doing it, would also be acceptable. We're not saying that that's the
4 only way. We're saying that that is an acceptable way.

5 MR. VAUGHAN: Bob, I think a lot of your comments we pretty
6 well agree with, but I believe the disconnect comes when we read the
7 words in all of the chapters and we generally feel like you're
8 suggesting the NRC wanted to proceed or was attempting to proceed, but
9 when we add up what's written, we don't get the answer that you say we
10 should. That's kind of a simple way to put that.

11 I want to pitch out another little personal idea I think on
12 some of this subject that might be considered as we go, and I draw a
13 parallel from the Part 74 regulations. If we look at a number of these
14 evaluations that are called out for the license reviewer in the SRP,
15 there is some objective that has to be satisfied, some determination
16 that needs to be made as the result of that, and I think there may be
17 some opportunity there to look at the sequence of the review and what
18 that objective is and convert that to a much simpler performance
19 objective that has to be met and affirmed or attested to that the
20 licensee will meet that.

21 For example, we are spending a tremendous amount of time
22 talking about training in prescriptive ways to do training and how it
23 gets driven. The fundamental safety dimension of training is to assure
24 that the operator or the person performing the work does so in
25 accordance with the safety operations and so that the plant is operated
safely. So that's kind of the objective, and we spend a lot of time
talking about how you get there, and not so much time on the objectives
that are important.

So I think some of these complex things we might look at a
little bit and see if there are affirmations or objective statements

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1 that need to be incorporated in the license, and it might simplify some
2 of the work to give us, you know, during the licensing process, a little
3 more time to spend on the things that require creative engineering to be
4 able to reach adequate solutions.

5 QUESTION FROM THE AUDIENCE: I'd like to mention an
6 experience the DOE has had with the criticality safety good practices
7 guide, which is to be issued shortly, and perhaps this will focus some
8 of the problems that are being discussed.

9 This guide is a much weaker document than the SRP. It's a
10 good-practices guide assembling the good practices of the criticality
11 safety community. It was written with an introductory section which
12 prohibited the use of the guide by auditors or reviewers. It was not
13 intended for that purpose. Very strong words were used.

14 The guide went out in draft form for review, and immediately
15 it began to be used in draft form by certain auditors in a few cases,
16 graphically illustrating the fact that when you have these very
17 excellent words in front, it does no good.

18 I solved the problem, I believe, by putting in the DOE order
19 a prohibition against misuse of the guide and specifically quoting from
20 the guide. So that if you do abuse this guide when it comes out, you
21 will be violating the order. Nobody wants to do that, because you get
22 in trouble with the General Counsel.

23 So in principle I think that will work, but you can't do
24 that with the SRP. And so even if you write good words in the SRP, I
25 despair of any solution to this problem. I don't know what to do about
it. I just bring up the DOE experience and how I handled it, and let
you draw your own conclusions as to what you might be able to do. But I
leave it at that.

MS. EYCK: I'd like to go back to the comment of NRC
requiring NQA-1. It was never our intent to require NQA-1. I think

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1 that how we've used it in the acceptance criteria area, we've tried to
2 identify regulatory guidance that may be applicable to the subject that
3 could be used to help focus both the licensee as they provide their
4 application and the reviewer, and the words that I read here, it says --
5 and also the fact that we wanted to have something that focused on a
6 graded QA, and one of the few things that we know that has focused on
7 graded QA, and related in the nuclear industry, was the NQA-1 effort.

8 And what the SRP actually says is the applicant should refer
9 to the American National Standard Institute, the American Society of
10 Mechanical Engineers standard, ANSI/ASME, NQA-1, da da da, with the
11 title, which provides requirements and guidance for such facilities.

12 It doesn't say that NQA-1 is the standard. All it is was
13 that when I tasked the staff to identify associated regulatory guidance
14 so that we could provide it, it was the most what we thought may be an
15 appropriate standard that applied to QA and it took a graded approach,
16 never requiring the fact that an NQA-1 program be implemented.

17 So maybe you can enlighten me if there's anyplace that
18 specifically requires an NQA-1 program, but that was never our intent
19 when we put the SRP together.

20 MR. KILLAR: Basically, by referencing it we feel that
21 you've set that as what would be acceptable. And granted it's not
22 saying that this is a required program, but the fact that you reference
23 it indicates to us that that's what your expectations are.

24 Now if you would reference, say, the quality assurance
25 program required for transportation CAS, that may be acceptable as well,
and that certainly would be a lesser program than NQA-1.

MS. EYCK: But don't you think we would be remiss in not
referencing NQA-1 as a related type of guidance document that deals with
& QA and deals with it in a graded approach?

MR. KILLAR: Well, we have a basic problem with NQA-1

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1 because when we see -- look at NQA-1, we think that's something that was
2 designed basically for a reactor which has a high source term and you
3 have a lot higher risk factors and what have you. And so that gives us
4 some real consternation when you refer to standards that were developed
5 for reactors and for higher source terms than what we have at our
6 facilities.

7 QUESTION FROM THE AUDIENCE: Another comment. Remember they
8 were trying to design this Standard Review Plan to be somewhat generic.
9 The concept about the source terms there is there are some
10 potentialities that we would be regulating facilities with large source
11 terms not represented -- we were trying to make something that would
12 be -- we could capture those sorts of facilities as well, so we could
13 have the reference to extend beyond what we just had, say, limited to
14 the lower hertz fuel facility, so there may be some lesson there. I am
15 not sure, but we may need to go back and make a clear distinction
16 between these facilities and some of the others.

17 MR. KILLAR: I appreciate that.

18 DR. PAPERIELLO: The question is what is an alternative?
19 What would happen if we wrote the Standard Review Plan and removed all
20 the acceptance criteria and left it up to the judgment of the individual
21 reviewer? That's an alternative.

22 MR. KILLAR: I think that is also a loaded question.

23 DR. PAPERIELLO: I know, because -- well, I have logical
24 problems. I mean either -- it comes down to three things.

25 Either because we are not going to have regulations to spell
out in detail what a person has to do for everything -- I mean that's
the fact of the way we work -- because we don't have as many, it's not
like an automobile where there's enough automobiles on the road so that
somebody can write specs on how bright the headlights are going to be
and how far apart and all that.

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1 It seems to me I got three options here.

2 I either, one, I turn around and provide the reviewers with
3 no acceptance criteria and leave it to their professional judgment, or
4 two, I turn around and provide criteria, but I don't provide it to the
5 public or you -- in other words, it becomes internal memos, which in
6 fact is the situation I found when I inherited this job a number of
7 years ago, or three, I do what we are doing here, and we turn around and
8 we come up with an acceptance criteria that you tell me I can share with
9 the people and we can turn around and work out something that everybody
10 agrees on which is right.

11 It seems to me somewhere along the line I have got to give
12 some criteria.

13 I am also bound by law which says when I use criteria to the
14 extent -- I have to justify not using consensus standards, for example,
15 where they are available. Right now the nuclear industry appears to
16 have developed a consensus standard that applies to QA, and we are
17 already saying that you consider the ISA, and you consider applying this
18 particular criteria to the areas which the ISA shows, which is
19 relatively high risk.

20 Now put aside the definition of relatively high risk, but if
21 we are dealing with a risk which is on the order of whatever and if it
22 happens to be comparable to a reactor risk, I would agree. One thing I
23 will first mention we all agree on -- that if I have a population group
24 within 50 miles of a fuel facility the risk of that facility to the
25 people around there is probably not the same as a reactor. I say
"probably not" because clearly if I had a reactor with a core melt
probability in the order of 10 to the minus 10, I may recognize that is
ridiculous, that risk would be much lower than -- I'll make something
up -- some place that uses nuclear material where it could go out, the
stuff go out the stack once a month.

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1 I am being a bit -- and so once you have a comparable risk,
2 why wouldn't you use a comparable QA program, and if we write the thing,
3 hey, you don't have to consider this, if you have a low risk -- you see
4 what I am getting at? I mean there's a criteria out there which is an
5 industry consensus standard which I am kind of obliged to use, without
6 defining it -- don't let a lawyer nail me into what I mean by obliged,
7 but clearly I've got an Act of Congress that encourages me to do that,
8 and frankly which I want to do because I don't have the resources to
9 write tons of standards myself.

10 We are trying to give the reviewers something they can use
11 rather than their own, you know, this is what I think it ought to be,
12 and you are kind of putting me back in the position of, you know, tell
13 the reviewer to consider independently whatever the licensee submits,
14 and I don't tell the reviewer some kind of criteria to bounce it
15 against.

16 I mean maybe I am wrong. I am just --

17 MR. VAUGHAN: I think fundamentally we believe that public
18 performance acceptance criteria are necessary because if the criteria
19 for acceptability is not publicly known, then it doesn't do a heck of a
20 lot for safety, so everyone needs to understand what the acceptance
21 criteria is. That seems to be fundamental in this issue.

22 I think our discussion of this subject centers around the
23 content of that acceptance criteria as opposed to whether we should have
24 one or not have one.

25 NQA-1, which we have talked about, is accepted and a
recognized standard for certain applications, but I don't think any of
us in the fuel fabrication industry have ever felt that that standard
was written to nor applies to the kinds of situations we have.

Wilbur may want to comment on it, but we had early-on in
this thing several people from GE and Westinghouse met over in Columbia

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1 for a couple of days and we initially thought that NQA-1 with some
2 clarification could result in the quality assurance that we were looking
3 for with safety systems.

4 What we ended up finding out after working with that for a
5 couple of days, that NQA-1 by structure just didn't seem to fit the
6 kinds of systems we were dealing with and every way we cut it we didn't
7 exactly get the result we believed you would need for that system, and
8 so we kind of dropped that effort, but I think that is in the back of
9 our minds about trying to use the NQA-1 pattern possibly to things that
10 it just doesn't fit.

11 MR. BIDINGER: George Bidinger, private citizen.

12 I am a little bit disturbed by what I heard the intent of
13 the Standard Review Plan. It was to put an upper level of safety on the
14 Staff.

15 It seems to me the Standard Review Plans should be providing
16 the minimum level of safety that is acceptable to the Staff and to us
17 private citizens, but to put limits, upper limits, on safety does not
18 seem to make a lot of sense.

19 I think we have to start from a philosophy, and that is my
20 philosophy is that you have to specify. I expect a regulatory agency to
21 be defining the minimum levels of acceptable safety -- margins of
22 safety.

23 I might add a bit to what Dr. Paperiello has said. When
24 standards are applicable, they should be used but in the case of the
25 double contingency that no standard on formal probability risk
assessment was ever intended, and yet it shows up in the Standard Review
Plan.

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I think there is a standard out there and it is being mated
with something that was never intended, and this is a mishmash, which is
not correct in the sense of the guidance provided in the ANSI standards

1 on criticality safety.

2 MR. PIERSON: That Standard Review Plan is constructed right
3 now is designed to provide guidance to the Staff for those areas that
4 are important to safety. The Standard Review Plan provides the
5 acceptance criteria -- the minimal acceptance criteria -- but that means
6 if the safety level is lower than that the Staff can back away from it.

7 What we're trying to do is define acceptance criteria for
8 the Staff to work toward and talking about it in terms of minimum
9 required safety that the Staff is going to have to make that judgment as
10 they are working with that but the Standard Review Plan has to function
11 as a guide to both give the Staff acceptance criteria to work for, to
12 provide that minimum threshold that we would accept.

13 I think you probably misconstrued what I said.

14 MS. EYCK: Also, what I would like to add, is that we are
15 talking about the Standard Review Plan criteria also applying to the
16 high risks areas and this is what we would consider the minimum
17 acceptable for high risk and that is not to say that it would apply to
18 all of the graded levels that we would be addressing based on the
19 results of independent ISAs.

20 MR. PIERSON: I just wanted to offer a couple comments.

21 First is in the context of having a "when are you done,"
22 "when are you safe enough?" there needs to be limits put on the Staff,
23 and I am counting myself one of the Staff. If you don't, there won't be
24 predictability. There will be ratcheting.

25 Each reviewer has a pet. He wants to make his area the best
that it can be. The problem is when you compare that with competing
risks, it may be detrimental to overall risk. The best may not be
needed. You don't need a Rolls Royce if there's low risk.

We are trained to do the best we can do in each of our
areas. The Commission is trying to control that make everything Rolls

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1 Royce in a way that here is an acceptable level of risk. In the reactor
2 arena you have a safety goal. In the SRP there is a like safety goal
3 that says you have arrived -- you don't need to do any more.

4 You should not have risk control programs for events that
5 are in 10 to the minus 10 space. It is a waste of money and it is
6 detracting from your business activities and it is detracting from real
7 risk.

8 You need to put a harness on the Staff and the NRC,
9 otherwise there will be ratcheting.

10 When there are events we run to the football, even though
11 they may be low risk. This setting a level of acceptable risk and
12 setting an envelope up will control that. If we can control it, we will
13 have predictability and we will have stability.

14 I would like to also make a comment on the documents for
15 example we were talking about -- NQA-1. I had quite a bit to do with t
16 hat in the reactor arena and a little bit to do with it in the beginning
17 of Part 70 when we met with the NEI folks.

18 NEI was working on a proposal for a QA standard for fuel
19 facilities and as I recall it, the answer that came out was when we
20 looked at NQA-1 and looked at the grading approach in NQA-1 we couldn't
21 come up with something better for the fuel facilities.

22 What needs to be recognized is NQA-1 is like an outline.
23 The folks that fill in the detail are the applicants. You fill in the
24 amount of detail under the outline that is commensurate with the risk
25 that the ISA identifies.

If that becomes too prescriptive and too encumbering, the
applicant needs to back it off, not fault to the standard and say I did
everything, every word, every sentence and standard, and it is an
industry standard. We are trying to adopt more and more of industry
standards rather than our own creations of either a Reg Guide or a rule

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1 itself.

2 We are trying to pick up on those standards and practices,
3 recognize the ISA should be the guide -- here is what's risky, here's
4 what we are relying on -- and there is a scale from killing people to
5 seriously injuring them to, gee, I burped a little bit of something out
6 of the process.

7 You write the detail into the outline commensurate with the
8 risk that is involved. When you are inspected, you should be inspected
9 commensurate with the risk. When you are enforced against, you should
10 be enforced against commensurate with risk.

11 We are really trying hard to do that. I am not claiming
12 success. There are people out there that are compliance counters. What
13 we need to do is push this risk approach and recognize this is an
14 outline -- you folks fill in the detail and the detail should be
15 commensurate with what you have identified in the risk analysis and what
16 controls you are putting in place.

17 The industry standards are, quote, "industry standards" and
18 filling in the detail should be unique to each facility, to each
19 activity, to each applicant commensurate with the risk.

20 MR. COX: Tom Cox. Can you hear me? Tom Cox. I am in the
21 Licensing Branch, and I have quite a bit to do with the SRP
22 promulgation, and lest we think we are not getting too far or achieving
23 some resolution, I would like to profess a couple of things and declare
24 at least a partial victory -- and make a couple of comments.

25 I am referring to the specific comments in the [November 25th](#)
[letter](#) to Carl Paperiello, and at my level we have had only a couple of
days to work on this and I have significantly focused on just two areas
I would like to talk about now.

 One is 2.6, organization and administration. The NEI made
three points there.

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1 The first one was about licenses under Part 70 are not for
2 construction and operation but rather for possession and use. I would
3 like to merely point out there -- go to 70.23(A)(3) and (4) and I
4 believe you can only conclude from that that the NRC Staff must make
5 assessments of construction, design, and the procedures in order to make
6 a reasonable assurance of safety finding, which we are required to make
7 in order to issue a license.

8 I think we must look at the construction and operation, both
9 from the design and procedures and evaluate what we see the applicant
10 saying there. That is point one.

11 Point two made here was about an unnecessary new
12 requirement, referring to the decommissioning of licensed facilities as
13 seen in the draft SRP, Section 2.4.3 where we apparently said Staff
14 review is needed for the experience and availability of personnel at the
15 facilities now for decommissioning activities that would occur much
16 later.

17 I think we can probably agree on that point. I don't think
18 it is a real major point and some language adjustments will take of
19 that.

20 The third point was about SRP calling for NRC review and
21 approval of internal licensee mechanisms for reporting safety concerns.

22 I think there it also refers to some language that we can
23 simply adjust and that will meet, I think, what your basic problems are,
24 and deal with that. I am just suggesting we will probably modify the
25 second sentence there dealing with some under existing facilities and
would take care of that one.

 I think you would have little problem in dealing with your
comments on Section 2.6.

 I would like to move on to a little more meaty one, I think,
in terms of configuration management. Your written comments to Carl

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1 Paperiello of a few days ago stated essentially that Part 70 licenses
2 don't license the design -- again we just talked about that -- and so
3 there should be no requirement to perform design reconstitution. Design
4 reconstitution was the focus of this comment on configuration
5 management.

6 There should be no requirement to perform a reconstitution.
7 But the comment also went on to say another paragraph later that
8 operators of facilities should commit to a configuration management
9 program in their license. I think the problem here may have been design
10 reconstitution.

11 I was interested in -- Felix, you said earlier today in your
12 comments probably an hour or so ago, that you felt the ISA, production
13 of the ISA necessarily resulted in a design reconstitution or at least
14 in establishing and documenting of the design basis.

15 Perhaps design reconstitution is just a pejorative term. We
16 should call it design basis document validation, something like that,
17 but you moved from the point in the written material here which tells
18 you we shouldn't have it, that it shouldn't be needed to saying that the
19 ISA in fact would provide it. I think we agree on that point.

20 In fact, if you will look at Section, the SRP section on
21 [configuration management](#), if you look in what we call there "acceptance
22 criteria," Section 11.1.4.2, we have only six criteria in that whole
23 chapter of some eight pages. The second sentence of the sixth criteria,
24 which is titled, "Design Reconstitution" -- item number 6 under
25 Acceptance Criteria, if you look at the second sentence, it says
something like because the information may duplicate the plant design
basis described elsewhere to support the ISA, this information may be
included by reference to other parts of the application.

 I think that is a very clear and explicit reference that we
recognize what you said a little while ago: this information should be

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1 necessary to construct an ISA. If it's there, simply point to it.

2 I think we should give more consideration to the other
3 comments you have made here. I think we can work much of this out, and
4 I have to agree with most of what also has been said here about the fact
5 that we need some direction with reviewers and we need to share that,
6 yourselves and the public.

7 I don't think we are going to get this job done by only
8 having a meeting like this where we sort of talk at a relatively general
9 level about the topic. I would suggest, and I have to point out that
10 this is only my suggestion, I think we need a smaller focus group to
11 handle each of these chapters -- prioritizing them -- some may be more
12 important than others -- but it's only until you get a group of about 10
13 people at most who are experts in these fields talking about this I
14 think you are going to work out the language.

15 I think what we are talking about here is language. We are
16 word engineers. We are basically engineers but we do it through
17 document. We must work out the language so that it is acceptable to all
18 concerned so it can be used in years to come.

19 MR. KILLAR: My comment -- the main concern we had on that
20 one area was use of the term "reconstitution" -- there should be no need
21 to reconstitute the design because the design is there. The problem we
22 have is the fluid design as through your configuration management,
23 configuration control, as you change the facility you update the design
24 to reflect those changes and our concern with using the word
25 "reconstitute the design" may indicate to us that we may have to go back
and say this is what we did in 1970 and it doesn't make any sense
because our facility doesn't look anything like it did in 1970 because
of the changes, so with the "reconstitute the design" that's the kind of
concept we were thinking of and that is why the term gave us some
concern.

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1 MR. COX: And I do hope we all agree that some kind of a
2 documented, validated design basis is necessary to know for the plant
3 today in order to make changes from some basis that you know about or
4 else your maintaining safety and making a change will simply be a matter
5 of luck if you don't have the design basis.

6 MR. KILLAR: We have the design basis today. We operate
7 according to the design basis, but they are ongoing, live design basis.

8 MR. COX: And you will find, I think, the production of the
9 ISA -- even as called for in our ISA chapter -- Chapter 3 -- says you
10 must start with a documented design basis.

11 MR. VAUGHAN: The only thing I would say, I think we are in
12 part having trouble with words, and when we see "reconstitute the basis"
13 that implies to us going somewhere back in history to develop this thing
14 when in fact we have the current safety basis of the plant documented
15 and the process documented, and what we are proposing is the ISA to go
16 through and apply the ISA process to our current operations and take the
17 result of that and enter that into the configuration management program
18 so it will then maintain itself as a living basis of safety as it lives
19 and breathes and operates and goes on about its way and there's changes
20 and modification, but some words are meaning different things to
21 different people.

22 MR. KILLAR: That's basically all we have on the Standard
23 Review Plan.

24 Is there anything else before we move on?

25 I think the questions that you have brought up we have
pretty well answered the questions throughout the discussion.

The one thing I would like to do is take the opportunity now
to talk a little bit about criticality safety, and the Standard Review
Plan for criticality safety, which would probably take us up to lunch.

MS. ASTWOOD: May I ask one question?

1 MR. KILLAR: Yes, ma'am.

2 MS. ASTWOOD: This is kind of a question to the NRC as well
3 as you guys.

4 I hear a lot of possible solutions being repackaging or
5 changing the words or making it clearer, and then I hear some solutions
6 we know that really need to take a whole new look at the way we have
7 applied these acceptance criteria.

8 Would it be helpful for NEI to try to propose an outline of
9 any chapter of the SRP in a format that would be acceptable, that would
10 be a little clearer for us to see in which direction you are going, if
11 it really is a whole rethink of the way it's proposed?

12 MR. KILLAR: That is a possibility. I have to look at my
13 members. They all have their heads down.

14 [Laughter.]

15 MS. ASTWOOD: I think we could handle the word changes. I
16 think that we can discuss. We can use the web. We can use phone calls
17 to do those kind of things, but if you are really talking about a
18 complete rethink I think we would like to put that in an outline --

19 MR. KILLAR: We may be able to take on, say, like the
20 Chemical Section because we did do quite a bit of changes and suggested
21 changes on that SRP when we sent in our letter on the chemical safety,
22 so that may be something that we may be able to look and do, capture
23 that.

24 Barry?

25 MR. MENDELSON: Can I ask -- and again this is something I
have not discussed with anybody, so it is my own, but I will throw it
out on the table.

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It sounds like one of the concerns that we have here is that
we don't have any examples of when the particular acceptance criteria
would be applicable to -- what things would be applicable to, and I was

1 wondering if we were able to in the time that we have available to us
2 between now and when we have to go back to the Commission, if we were
3 able to add examples in the SRP of those kind of operations, high risk
4 operations to which the highest levels would apply and maybe include
5 some other examples -- say for this kind of an operation, a lesser
6 criteria would apply whether that would be helpful.

7 MR. KILLAR: Let me look into it.

8 I think the problem you are going to run into is that there
9 are going to be specific examples and then you run into the debate as to
10 where that falls on the hierarchy of risk and stuff and you end up
11 spending more time debating that than rather coming out with an example
12 that is workable, so we can sort of look at that but I am not sure if we
13 will be able to successfully accomplish that in the time that we have
14 available.

15 MR. EDGAR: I think one of the things we need to recognize
16 too is that historically the use to which these types of guidance
17 documents have been put, and as was pointed out by this gentleman here,
18 that a draft document comes out and somebody begins to use it as a
19 requirement also, and then we get the guidance documents which in
20 principle are good things, but the begin to be used as requirements and
21 so if I could borrow from Dr. Paperiello's three alternatives, it seems
22 to me that the preferred alternative would be, yeah, there are criteria
23 that are presented to the reviewers but in addition to that there has to
24 be professional judgment used as to when those criteria are explicitly
25 applied and when they can be applied at some lower level.

MR. KILLAR: Since I see no one else moving towards the mike
for our Standard Review Plan, one of the things that I would like to do,
since the last issue on the Standard Review Plan we had was the
criticality safety and the question about the use and interpretation of
the American national standard, Mr. Bidinger is here representing the

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1 Ameircan Nuclear Society and I would like to give him a few minutes to
2 talk about the use of the standard and how it has been reflected in the
3 SRP.

4 MR. BIDINGER: I'm George Bidinger. No, I am not here as a
5 private citizen, I am here representing the [Nuclear Criticality Safety](#)
6 [Division](#) of the American Nuclear Society. By way of [introduction](#), we
7 are a profession division. We have about 575 members, and they come
8 from all walks of like, research, commercial, government operations,
9 regulatory development, oversight, educators and consultants.

10 The Criticality Safety Division sponsors Subcommittee 8 on
11 fissionable materials outside reactors, which is an ANS Standards
12 Committee. And most recently, we are pleased that the NRC has endorsed
13 all 15 of the ANS-8 standards in Reg. Guide 351.

14 We were [made aware](#) of this draft of the Standard Review Plan
15 during the ANS winter meeting last month here in Washington. Senior
16 members of the division reviewed the draft and the Standard Review Plan
17 for consistency with the ANS-8 recommended safety practices. Not
18 surprisingly, we generally support the objectives of the proposed rule.
19 We are concerned with the underlying issues with the rule and the
20 Standard Review Plan, and I will go into those.

21 Our [first concern](#) deals with nuclear criticality being
22 defined as a high consequence event. We start off dealing with risk and
23 suddenly we are talking about high consequence. It almost appears that
24 the rule treats the two words synonymously. Most criticality accidents
25 in this country have not exposed people to more than a hundred rem,
which is another category of high consequence. We have had two deaths
in criticality processing plants, one at a licensee's plant, one at a
contractor -- a DOE contractor site.

Experience, which is very limited, because we have had few
accidents, shows that the lethal consequences occur only when the

1 nuclear worker is within a few meters of the actual excursion and they
2 are really no off-site consequences to the general public from such an
3 accident.

4 We do agree that continued attention is necessary for
5 criticality safety. However, criticality safety should be treated in no
6 intrinsic way different than normal industrial safety practices. This
7 is a part of our ANS-8-1 standard.

8 I will take questions as I go along here, if you like, or at
9 the end.

10 Our [second concern](#) has to do with the methodology in the
11 Standard Review Plan, Subsection 5.4.5.2, I think that is in [Chapter 5](#),
12 on criticality safety. Subpart (b) is overly prescriptive for
13 establishing safety limits for controlled parameters and their controls.
14 As a matter of fact, while the NCS D is in agreement that it is overly
15 prescriptive, they are not in agreement on what that subpart actually
16 says. We could not reach consensus, so it is very confusing, but those
17 who could follow it part way through used all kinds of adjectives in
18 describing it, but they said it was overly prescriptive and not within
19 current practice.

20 As an example, we used a simple mass limit, 350 grams, using
21 Subpart (a). Using the Subpart (b) methodology, we came up with all
22 kinds of numbers from 200 grams to 400 grams, and it was just an
23 unrealistic exercise, that it is extremely complicated.

24 The primary concern is that this methodology is just plain
25 inconsistent with concepts of assuring safety and risk control,
regardless of the basis for the subcritical limit. In Subpart (a), if
you use critical mass data, you are just required to have controls. If
you use Subpart (b) and calculate the critical mass, then you have got
to go through an extended, rigorous method, which we are not sure
exactly what you mean, to come up with the controls, and we just don't

1 see any basis for differentiating in the controls for protecting a limit
2 regardless of the way that the limit is established.

3 So that is our next bullet there, the selection of the
4 controls should be independent of the method of establishing the
5 parameters, whether those limits come from experimental data or
6 validated calculational methods. So Subpart (b) is just simply
7 inappropriate on the controls. And I say that even though we are not
8 quite sure how one -- or what is expected for us -- or expected of the
9 industry to use those -- that guidelines, or how your people would
10 interpret them.

11 Our next concern has to do with the Standard Review Plan,
12 the requirement to use PRA to affirm double contingency. PRA is
13 profitable in some applications, but it is a substantial overkill on
14 most applications. It really is not used -- it is rarely used in the
15 industry. It frequently goes far beyond the intent of ANSI-8.1, which
16 is the document that has the double contingency statement in it.

17 As we read the Standard Review Plan, more effort would be
18 expended in calculating the probabilities than in demonstrating that the
19 process is, in fact, subcritical, which is the primary thrust of
20 ANSI-8.1. More important, databases for equipment failures in fuel
21 processing plants do not exist -- they do not exist. So you are putting
22 a requirement on the industry that they cannot meet. There is one
23 database at Savannah River plant, but that is for a reprocessing plant,
24 a different chemical environment than you would have in a fuel
25 fabrication plant.

The Statement of Considerations notes the industry's
objection to PRA but that is ignored then in the Standard Review Plan.

Our last concern is with the complex regulatory process for
the ISA. Our division does support the ISA in principle, however, the
ISA process and report requirements are rather complex and somewhat

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1 unclear. We are afraid that a complex ISA process with distract from
2 safety engineers, not just criticality engineers, but safety engineers
3 from observing operations and discussing operations with the operators.

4 Just as an aside, at the same meeting, we had a session on
5 the Defense Board's impact on criticality safety at DOE plants, and Dr.
6 Kouts, who heads up the Defense Nuclear Safety Board, made the point --
7 the same point, that he is concerned that the DOE requirements are
8 becoming so complex that engineers are being taken off the floor and
9 away from talking to operators, and this is not -- this is
10 disadvantageous to safety. So we have that concern with the -- because
11 of what appears to be reporting requirements that are quite burdensome.

12 And, finally, the DOE contractors, by contrast, have a
13 safety basis defined in their SAR. The detailed evaluations are not
14 submitted to DOE. And we would suggest that the NRC look at this model,
15 this DOE model, for their treatment of the ISA materials, because we are
16 concerned that it would detract from safety engineers being on the
17 process floors where they can do their work.

18 That's a quick overview of the NCSD program, our concerns
19 with the current rule, draft rule and draft Standard Review Program.

20 MR. SCHWINK: George, let me just ask some questions for
21 understanding. One of the things that the Commission is pushing is the
22 risk-informed and performance-based regulation. Personally, I think it
23 is great. One of the things that strikes me about nuclear criticality
24 as an issue is it is a risk item. Sequoia didn't die -- the guy at
25 Sequoia didn't die from a criticality, he died from essentially a
chemical exposure.

MR. BIDINGER: That's right, he could not have died from
criticality.

MR. SCHWINK: So the issue of risk, what we are trying to
focus on are things that really hurt people, whether it be chemical,

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1 whether it be criticality, whether it be a dose of some kind, but really
2 focus on risk. Along the lines of what you were saying about detracting
3 people from real risk, as well as detracting them from making money in
4 business, and I personally like the nuclear industry, so, you know, as
5 long as it is safe, please have it from a business point of view.

6 The point that is a little confusing to me is, if you read
7 the ANSI standard on criticality, it is very deterministic, double
8 contingency. I am not so sure double contingency is necessary in all
9 risk cases. Recently, I have been at DOE sites and, to my astonishment,
10 and also a little bit of a calibration, saw actual, physical barriers,
11 as well as analysis, that if the criticality happened, so what, the
12 worst you could get was two rem, which is within occupational exposure
13 limits. And the argument was, why do we need criticality alarms? Why
14 do we need to have all these controls? They had a convincing case, to
15 be quite honest.

16 I think in our fuel facility processes, looking at the
17 different enrichments, looking at the likelihood, the PRA approach,
18 although I don't think you should ever make decisions based on bottom
19 line numbers, but looking at the risk, I think there are arguments to be
20 made. In the reactor arena, we made arguments about criticality alarms.

21 The ANSI standard tends to ignore that and just simply call
22 for a very deterministic approach that has a lot of prescriptive detail.
23 What we are trying to move toward is the opportunity to make the risk
24 case, and perhaps we did go too far in the SRP and just simply not leave
25 it open to the same risk standard in terms of this is acceptable risk,
meaning whether it is criticality or it is anything else, it is
acceptable. And then look for the robustness of those controls, and if
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double contingency, and diversity, and separation are chosen by the
applicant, good enough. If there is a case to be made that you don't
need all of that burden, that may be good enough as well.

1 I am trying to understand what is it that would be the
2 recommendation of the group in the context of not pursuing the risk
3 approach and following more the deterministic approach, which has a lot
4 of baggage on it, or some combination of the two, or retaining the
5 traditional approach as long as you have double contingency, and you
6 have got a Ph.D. in nuclear engineering, and know the membership network
7 for criticality membership, or ANS membership, that is good enough. I
8 don't know what approach is that they are suggesting.

9 MR. BIDINGER: Well, I have to strongly disagree with your
10 assertion that the standards are deterministic. If you will go back and
11 read 8.1 -- and let me explain just a bit about ANSI standards. They
12 are three verbs in there, shall a requirement, should recommendations,
13 and may, which is permission.

14 In 8.1, there is a requirement that the process shall be
15 shown to be subcritical, and that is a paraphrase, I can't quote the
16 words exactly. The double contingency is that there should be
17 sufficient factors. It is a recommendation. It is not -- it was not
18 important enough to make it a requirement of the standard. So
19 overabundance of attention on the double contingency and its formalism
20 can be a detriment to the actual requirement of the standard that the
21 process be shown to be subcritical. And I afraid that the Standard
22 Review Plan does make that mistake.

23 MR. SCHWINK: What I would offer, though, is our OGC has put
24 out a position that this is guidance to the reviewer and it is one
25 acceptable way to satisfy, just like the shoulds, and it is a good
practice to do that would be in the ANSI standard itself. The rule
states what shall be done. The SRP and any Reg. Guide is what is
guidance.

MR. BIDINGER: I hear both sides of the table on that issue,
and my own experience is that younger people who do need the guidance

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1 will tend to take the guidance as gospel, and that is -- well, that is
2 human nature. I mean it is something that has to be dealt with, and
3 that's where I come from, is that they should be provided guidance with
4 a minimum degree of safety, not the maximum permitted. That's a concept
5 I just can't accept.

6 But I think we have -- there is another thing that comes
7 into your comments and is in the standard and the rule, and it has to do
8 with risk and high consequence, and it looks like they have been used
9 interchangeably. And high consequence -- well, a criticality excursion
10 is not a high consequence to anybody off-site, period. Blank statement.
11 In most cases it is not even a high consequence event to workers
12 on-site.

13 But when you get around to talking about the risk of
14 criticality safety, with a proper evaluation, and even using the double
15 contingency as some additional risk management, then the risk is very
16 low. And I don't think that the proposed documents make the
17 differentiation between risk and consequence. And when it is -- using
18 your definition of high consequence, it is still a very low risk. And
19 then to have to put in all of the additional requirements over and above
20 normal management practices for routine industrial safety is
21 questionable.

22 MR. SCHWINK: What I would offer is that there are certain
23 things that are inherently safe, God protects us all kind of thing. And
24 then there are other consequences we have some controls of some kind
25 that make it acceptable risk. There are natural phenomena that can
destroy anything you want to build. The thing that makes it acceptable
to live in that arena is the likelihood of that happening. And, again,
I don't want to make it sound like what the agency is pushing toward is
the traditional reactor PRA, because that is not the case, what they are
pushing for is let's agree on a risk and not so much focus on a specific

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1 consequence or a specific likelihood, and what that buys us is the
2 opportunity to take advantage of things that may be terrible
3 consequence.

4 The fuel cycle process involves people up close and personal
5 to the material. So the issue of being a few meters away, real people
6 are within meters of the process itself, which can have a criticality
7 implication. The likelihood of that, on the other hand, makes that
8 consequence acceptable, because it is not very likely, and we have
9 defined likelihoods along with what is acceptable risk, and, therefore,
10 it makes it acceptable to deal with.

11 What I would offer is, rather than a rigid structure of
12 prescription that is in any standard, allow the graded approach that
13 says once you demonstrate acceptable risk, and the SRP has said here is
14 what is acceptable, when you reach this, you are done, you don't need to
15 do more, that will control the staff ratcheting. And then, second, when
16 you identify what the controls are that make that risk acceptable in
17 terms of the frequency and the consequence -- and/or the consequence,
18 then you are done and all you have to worry about making sure of is that
19 those controls truly are available and reliable to perform that function
20 when called on, and will perform it as long as you need it.

21 The contention that I think is driving that is there is a
22 strong belief by the Commission, and even filtering down to the detailed
23 staff reviewer level, that maybe it doesn't need to be a Rolls-Royce, it
24 can be something less. Maybe one contingency is enough. And in the
25 case of the recent facilities, I visited at Savannah River and at Oak
Ridge, they have got a real good case for why worry about criticality
alarms. You just literally can't get more than a two rem dose because
of these bunkered cells they use. The bottom line being, get away from
the reaction of running to the football with criticality and deal with
it in risk base.

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1 And I think the Commission is struggling desperately to try
2 to push in that direction to take burden off of industry and, yet, still
3 have the acceptable risk.

4 MR. SHERR: George, if I can interject, I think -- the first
5 agenda item after lunch is criticality. I think we are into broad
6 issues that we are dealing with after lunch. My suggestion is we break
7 lunch now and we continue after lunch.

8 MR. KILLAR: Could I just say that the division is
9 forwarding a letter to Dr. Paperiello. I should have mentioned that
10 initially. I have a copy of it here, I will give to you, Ted. Unlike a
11 check, the letter is in the mail.

12 MR. SHERR: Could I also get a copy of your viewgraphs?

13 MR. KILLAR: Sure.

14 [Whereupon, at 12:12 p.m., the meeting was recessed, to
15 reconvene at 1:20 p.m., this same day.]
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A F T E R N O O N S E S S I O N

[1:20 p.m.]

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3 MR. SHERR: The next agenda item is criticality safety.
4 Before we get into that, our maybe continue it, the attendee list has
5 been typed up. The gentleman who typed this up noted that there are
6 some individuals who have penmanship as bad as mine. I think he said
7 something like that. So I urge you to double-check -- I don't care if
8 we spelled your name right, but make sure we got your e-mail address
9 right, that is where it doesn't work. So, if you could just
10 double-check. If you see any problems with that, give us the changes.
11 Appreciate that.

12 So, we will start with the criticality agenda item number 4.
13 Felix, are you --

14 MR. KILLAR: Yes, we are ready. We will move on to the next
15 topic dealing with criticality safety, and we have got Charlie Vaughan
16 with General Electric that is going to present that topic.

17 MR. VAUGHAN: The presentation is going to generally focus
18 on the rule, but, obviously, there will be some places where we talk
19 about ties into the SRP, and I think that is important as we go forward,
20 because not only do we have to understand the rule, but we have to
21 understand how that ties into the overall system.

22 And I will mention now that we got a couple of questions on
23 criticality safety yesterday to look at, and, in general, I think they
24 are going to be reasonably well answered in the information that I
25 present. On the other hand, I will try when I get finished, and maybe
go back and just touch on those so it is clear.

 The first place that we started was -- this is not
ANN all-inclusive, but what we tried to do was write down the key parts of
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& ASS what we understood from reading the proposed Part 70. There may be
OCI differences of opinion about that between different people that read it,
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1 but this group tried to write down the key things that we understood.
2 And I will not go through all of them, but I do -- under perform an ISA,
3 item (ii) there, the rule does seem to say that you -- or it does say
4 that you assess accident unmitigated consequences. It uses that
5 terminology.

6 But in other places in the rule, it also says that it
7 prescribes as high consequence of concern certain items, and it never
8 gets you to the risk component of that and the graded part. So, that is
9 kind of a key disconnect, I think, between items in the rule, and I
10 believe the key is that the rule focuses a little bit more on
11 consequence than it does integrating the risk piece into that.

12 MR. SHERR: It is not clear what you mean. Can you
13 elaborate?

14 MR. VAUGHAN: The rule addresses consequence. For example,
15 it prescribes criticality safety to be a high consequence of concern.
16 And there's nothing wrong with that. I think most everybody accepts
17 that as correct, but we are trying to move in the direction of a
18 risk-informed regulation, and to get risk, we also have to look at the
19 likelihood, but the rule stops at consequence and it really doesn't
20 fully integrate the risk element and have the risk be the part that
21 drives the program.

22 MR. LEWIS: Excuse me. I guess I don't understand that so
23 much, because the very next subsection after it says that criticality is
24 a high consequence seems to say that the occurrence of any high
25 consequences should be, or shall be highly unlikely. So I believe that
that is the risk, it is the probability and the consequence that are
specified.

MR. VAUGHAN: And that is the -- but that automatically
prescribes -- you see, you still don't get down to the full
implementation. That automatically prescribes that criticality is a

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1 high consequence, which we all agree on, but the likelihood is not
2 necessarily a likelihood that the ultimate -- we agree that we have to
3 make it highly unlikely, but where we don't agree is the gradation of
4 the controls and the activities that are done to support that. And that
5 is where the risk piece has to come into being. Okay. That is where
6 the difference is, I think, between the way we are looking at it.

7 MR. PERSINKO: So is your concern then with the rule? I
8 mean it sounds to me it is not with the rule so much, but we are back to
9 the SRP.

10 MR. VAUGHAN: I said there is a tie there, and I think it is
11 a combination of the rule and the way that ties in with the SRP. I
12 think there's two pieces of it. And I think the rule needs to be
13 cleaner on the inclusion of risk, not in terms of just highly unlikely,
14 but needs to be cleaner on that subject, and then the SRP needs to
15 support that.

16 MR. COX: Could I make a comment here? Tom Cox, again. Can
17 you all hear me? As Rob Lewis just pointed out, and I think, Charlie,
18 from what you said, an accident sequence that ends in a criticality is,
19 by the definition of the rule, a high risk accident sequence. It has
20 high consequences, it must be highly unlikely, so both consequences and
21 likelihood have been treated. We have said it is high risk, and the SRP
22 treats a criticality sequence that way also.

23 MR. VAUGHAN: I said that it is high consequence.

24 MR. COX: I'm sorry, what?

25 MR. VAUGHAN: I said -- my words were, and the rule -- the
words in the rule that we were concerned with is that it says it is high
consequence, and that is a true statement, but it doesn't address the
term of risk at the level of implementation. It just simply prescribes
& highly unlikely, and that is not enough definition to deal with the
ASS actual implementation of criticality.
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1 MR. COX: Well, I think I could respond to that, and I would
2 agree with that, that the rule does not define highly unlikely. That is
3 what the SRP chapter does in the ISA chapter.

4 MR. VAUGHAN: Okay. And we have said there is a tie between
5 what is in the rule and what is in the chapter.

6 MR. KILLAR: If I could help out here a little bit, Tom.
7 What our concern is, in reading the rule and reading the Standard Review
8 Plan, it does not appear to us that the risk of that criticality is
9 adequately defined, and that when you talk about criticality being an
10 accident -- or being a high consequence event, we have no disagreement
11 that, that we can't control where an operator could be at the time in
12 the plant, and he could be next to that tank or vat or whatever when it
13 goes critical.

14 But on the other side of the coin, you have to look at the
15 likelihood and, well, it seems to be spelled out somewhat in the SRP
16 that you coupling those. It is not perfectly clear to us that you are
17 taking the coupling and taking account of the barriers and controls that
18 you have to prevent that criticality, which then puts that down into the
19 acceptable risk range.

20 MR. COX: We think the SRP describes in some detail just
21 exactly how you would go about taking account of those controls when you
22 lay out -- when the owner, operator, licensee, applicant lays out in
23 that Table A-1, I believe it is, the controls that are involved in a
24 particular sequence leading to a criticality, and you would describe how
25 those controls tie in, what the likelihoods of failure of those controls
are. The rule simply says that when you get to the end of that accident
sequence, it must be highly unlikely. And that's the way we address it
in the SRP.

MR. KILLAR: I understand what you're saying. I think we're
looking at it from a different direction than you are. And from that

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1 case maybe we're not quite -- we may be in agreement, but we're --
2 because we're coming at it from different directions it's not apparent
3 to us.

4 MR. COX: Oh, it might take more detailed discussion on this
5 point, and I don't know how much you want to do that now.

6 DR. PAPERIELLO: Could I ask -- could we first listen to the
7 presentation before we start -- I'd like to hear the whole thing first.

8 MR. VAUGHAN: Okay. This sheet tries to focus on what
9 industry has identified as concerns, which is a continuation of the
10 discussion that we were just having, and in fact the first item there,
11 it just seems that the rule more focuses on just consequence and not
12 risk. Now that's discussable, but our opinion is that.

13 We do agree, and it seems like there's uniform agreement,
14 that a nuclear-criticality accident is a high consequence, but may not
15 necessarily be a high-risk item. And we believe that the
16 nuclear-criticality aspect should be treated comparably with other
17 safety considerations for the plant site and not treated in necessarily
18 a different fashion.

19 The proposed rule really in our opinion doesn't recognize
20 the appropriateness or the grading of criticality safety controls based
21 on risk. That would be in 70.60(c) I think is where that goes, and in
22 fact nuclear criticality safety controls do vary in their importance.
23 And it has to do with lots of things. Just the enrichments being
24 handled in the facility, the time it takes to get into a dangerous
25 situation when there's been a control failure, the type of controls that
you use, whether they're engineered, whether they're administrative,
whether they're passive, active, how they're implemented, how they're
assured. So there's a lot of things really that go into dealing with
the risk and grading the criticality controls and identifying based on
their grade what situation should be in place.

1 And again, and we coined a new word up there, but I did some
2 research on it, and levels and levels are about the same meaning. But
3 there are different levels of assurance that are warranted for different
4 types of control schemes. So we think 70.76 -- and I'll talk about that
5 in a little more detail -- will need some work there.

6 I won't go into this in detail. We picked it up and ANS has
7 picked it up, that the double-contingency principle is kind of
8 improperly applied by the assignment of quantitative failure frequencies
9 to criticality safety, and generally the professional community has
10 dealt with that in a different way.

11 I'll also say that I understood that we wanted to have a
12 workshop specially on criticality safety, and I suspect with the
13 comments that we've been hearing, that's going to be beneficial, because
14 there does need to be some getting down into basics and see if we can
15 come to agreement on what the professional community is doing, and is
16 that proper, and if it is, then how do we, you know, codify that so it
17 gives it some validity.

18 The rule also talks about criticality controls being
19 continuously available and reliable, and that's where it stops. And
20 that raises a lot of questions in our mind about okay, when we have to
21 take a control off line to do calibrations and maintenance, in fact we
22 do defeat the controls and we do manipulate them to be able to go
23 through those functional tests. If a process is down and not running,
24 you know, what's the significance of having a control that's not
25 operatable. So we think that needs to be qualified to say when required
to perform their safety function. And I think that's in 70.60(d)(3).

 And it's also then not clear to us that the licensing
process is set up to focus on the high-risk accident sequences. We hear
a lot of words when we talk that says that's what the intent is, but
when we look at it, we don't see exactly how the guidance would generate

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1 an approach that says the high-consequence or high-risk items are the
2 ones that we're going to focus on, and we're going to look at some of
3 the others, but the key is at the high level.

4 Just to look at some of the things that we might propose to
5 correct, one is to revise the language so we're both happy that it
6 reflects a risk-based as opposed to a consequence-based regulation.
7 That I think is something that we could work out with a working group on
8 that subject. And we think that we ought to have a risk-informed,
9 performance-based methodology embedded in all this that enables the
10 licensee to evaluate the risk and the likelihood -- well, the
11 consequence and the likelihood to get risk for nuclear criticality
12 accidents as well as all other accidents, and to establish a risk-base
13 which would be graded levels of protection to prevent
14 nuclear-criticality accidents. That's the subject of trying to get in
15 and analyze and determine particularly how important various criticality
16 controls are, and what about them is important to control to make sure
17 that they're available when needed. And then to carry that right on, as
18 I was saying, into the graded level of assurances that we use for their
19 control to ensure their availability and reliability.

20 In the section that talks about graded level of protection,
21 we think that the quantitative approach to the double-contingency rule
22 ought to be removed, and we ought to go back and just incorporate the
23 ANSI standard approach for dealing with that. And we also think that
24 the language of the rule on reliability and availability needs to be
25 clarified to indicate that it's during periods of time when it should be
available, and I think -- that's in 70.60(d)(3).

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So that's pretty much the prepared information that we had.
The question A under criticality, I think that the first part of that
with regard to what are the specific concerns that we have with the rule
was pretty much the subject of what we presented.

1 What are our concerns with the SRP? We've enumerated some
2 of those, and there are clearly ties between the SRP and the rule, but
3 we have not I think exhausted this whole subject of the SRP and how
4 criticality safety is treated in there, and like I said, it was our
5 understanding that we were tentatively proposing to have a workshop with
6 the criticality professionals to do that, and that's probably the forum
7 to resolve some of those issues.

8 With regard to B, I believe where our position really is is
9 that we want ANSI 8.1 to be used as the standard, and apply it across
10 the industry as it has been in the past, and we believe that it's
11 perfectly acceptable to do that. So we don't see a need to regenerate
12 that.

13 Okay?

14 DR. PAPERIELLO: Yes. I've got a couple -- could you put
15 your last slide up?

16 If I go down, the last -- the third bullet I understand, and
17 I probably don't have too much argument there. I noted to my staff at
18 lunch time we have just published a Part 63 as it's been to which we
19 have removed.

20 See, I look on this whole issue as barriers. I mean, the
21 fact of the matter is double contingency is the deterministic way of
22 controlling risk in criticality, much like defense in depth was used for
23 reactors years ago. That was sort of -- even though we keep it -- we
24 still deal with PRAs, and which in basically subsystem performance for
25 high-level waste, and having quantitative criteria for each subsystem
has now given way to each needs to make a contribution. But we're
looking at overall performance of the repository, and not what each
individual barrier contributes to this thing. So that's why your third
bullet doesn't give me much of a problem.

 But we keep seeing the talking around here. I agree, risk

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1 is consequence times probability of the event. I mean, you know, that's
2 the same. You've made a statement, and I think we all agree here, that
3 criticality is a high-consequence event. So that means to get
4 acceptable risk we ought to be -- I mean, the risk ought to be the same.

5 I mean, the resulting risk to workers or the public ought to
6 be the same, regardless of the kind of accident you have, because an
7 accident with a low consequence, you can tolerate a higher probability
8 than one with a high consequence, you then have a -- you need to worry
9 about a lower probability, so that overall the product -- I just don't
10 understand when you argue -- thought that's what we were doing. We were
11 saying we want the probability for a criticality to be low, which is --
12 I don't -- I guess I don't understand. We've defined it as
13 high-consequence, you agree that it's high-consequence. We both want a
14 certain probability there to give an acceptable risk.

15 MR. KIDD: Carl, let me point out just one item. I think
16 we're both on the same track. I think there's perhaps a little bit of a
17 wording problem in the rule that needs to be corrected, and just as an
18 example, if you look at 70.60(c), when we talk about consequences and
19 likelihoods, we tie likelihoods to external events only in that
20 particular rule language, the way it is written currently. And that
21 likelihood should be tied to not only external events, but internal
22 events and process deviations. And I know that was your intent, but all
23 we're saying is that there are a couple of places in the rule language
24 where if we talked specifically to the risk as opposed to the different
25 elements of consequence and likelihood, or that we get the likelihood
tied to the right thing, I think we'll have agreement in many places.

DR. DAMON: I think I can -- my name's Dennis Damon. I'm a
criticality safety specialist on the NRC staff, and I've been thinking
about the same subjects that Charlie's been thinking about. And I agree
with every single one of his points on his slide except one, which I

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1 might get to later.

2 But I've recently had an illuminating thought with respect
3 to the two points he's making up there about how you grade safety
4 control. The illumination is this, and that is that among the assurance
5 measures that we apply to criticality -- to any safety thing, there are
6 some which are not proportioned to the quality of the safety controls or
7 to the risks, they're in proportion to the consequences. And then there
8 are others which are proportioned to the reliability level you need to
9 get with the safety controls.

10 So you've got to get that in -- and let me give an example
11 so you understand what I mean, is that if -- once you've identified that
12 you've got a high-consequence event, that means you have to have a
13 high-reliability safety control, right? To get the likelihood down and
14 to get this balanced risk that Dr. Paperiello was talking about. So
15 anything that you do to get that likelihood of failure of that safety
16 control down to where it has to be, it has to be of whatever quality
17 level is sufficient to get you there. And so that's the part that's
18 proportional. That's the risk-graded or whatever you want to call it,
19 reliability-graded, likelihood-graded part of this thing. Any measure
20 that you take or any item relied on for safety has to get you to that
21 reliability level.

22 So things like how often do you do maintenance, the
23 thicknesses that you make things to prevent wearout failure,
24 preoperational testing, all kinds of things that are specific to a
25 specific piece of equipment, they just have to be done to whatever level
is enough to get you to that reliability. And the design engineer can
play with these things. He can give you a little more of this, a little
less of that, and he can come with all different combinations that will
get you where you want to go. But nevertheless the whole scheme is
risk-rated.

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1 Now, get to the two things that I come up with that are not
2 graded that way. What they are is configuration management and auditing
3 of the whole system. So if you have like a system that has S&M in it,
4 that system can go critical because it has the S&M in it. So that means
5 since the consequence of the event is a criticality and if you accept
6 that's a high consequence, what the configuration management is
7 protecting you against is that somebody changes that system, and that's
8 why it isn't graded with the quality of the safety control, it has to be
9 applied equally to all systems that have S&M in them. And the reason is
10 that you cannot allow the operations staff to change the configuration
11 of any system that has S&M in it. You can't allow them to do that.
12 Because what they can do is no matter what the safety control is on the
13 system, if you allow the staff to change the system, they can defeat the
14 safety control.

15 So what you need to do is have an adequate degree of
16 configuration management on every system that has a potential for a
17 high-consequence accident. You can't allow any of them to be excluded
18 from configuration management.

19 And then there are some measures that are analogous to
20 configuration management that go along with that. So I thought -- and
21 basically I agree, you know, with what you're saying, that -- and I
22 think the word, as the last gentleman said, I don't think this is a real
23 problem. I don't think this is a real problem. I think we solve it by
24 clarifying the language and giving better guidance to the staff, and
25 we're done with this issue.

MR. VAUGHAN: Let me try a little bit of a question on you.
You talked about some of the things that, you know, we do to control,
and you were over in one area. But I think that, you know, we have a
number of different control methodologies to use like passive and active
engineered controls, administrative, and each one of those has certain

1 characteristics associated with it. And should that not be factored
2 into looking at what the ultimate risk level is and how those controls
3 would be treated?

4 MR. DAMON: See, you don't want to get yourself in a
5 circular argument here. The reason the risk will end up being low is
6 because of the safety control, right? And so -- but they're only good
7 if you do them good. And that's what the graded approach means, is you
8 have to --

9 MR. VAUGHAN: That's true, but if you pick, for example,
10 administrative, which is probably the weakest yet perfectly appropriate
11 in a number of situations, you know, if you pick a very weak control and
12 a very complex system, then the amount of risk reduction you get from
13 that is probably minimal compared to if you go with, you know, strong
14 engineered controls or something like that that are well maintained.

15 You know, I just -- it seems like those other components
16 play a part in this.

17 MR. DAMON: If what you're saying is that in doing our
18 reviews and stuff we should focus on administrative controls, I actually
19 agree with you.

20 MR. VAUGHAN: That's not what I said.

21 [Laughter.]

22 We have to focus on all the controls.

23 MR. DAMON: But I -- I mean, that is the more problematic
24 one. I mean, my own view is that the people that you normally go to to
25 have them design a piece of hardware for you, if you're going to go with
a hardware control, hardware engineering has been done a long time, and
they generally know how to do them and make them reliable. I rarely see
a badly engineered piece of hardware. But I often see a badly
& engineered piece of procedures.

DR. PAPERIELLO: Could I get to words? And we're looking at

1 (c). Take a look at the words here. And I say let's go to the 1 and 2.
2 It says the occurrence of any of the high-consequence identifieds in
3 paragraph b(1) of this section is highly unlikely.

4 If I turn around and change it and say the probability of
5 occurrence of any of the high consequences identified in paragraph b(1)
6 of this section is very low, I think I've just defined risk. In other
7 words, probability or the consequence times the probability of
8 occurring. And then you could go to the probability of occurrence of
9 any of the intermediate consequences identified in paragraph b(2) of
10 this section is low.

11 Does that take care of defining -- I'm going to go back to
12 the other words. I just want it turned around. Does that get this and
13 make it risk? Because the consequence times the probability is risk.
14 We all agree with that.

15 MR. VAUGHAN: Right. And the only problem that we've had
16 with the term "probability" is it's highly associated with PRA and the
17 things --

18 DR. PAPERIELLO: I know. And we've tried to dance around
19 that thing. I mean, you know, you're right. We don't -- I just don't
20 think it's technically feasible to do a PRA on a facility like yours. I
21 mean, I'm just -- it's not technically feasible.

22 I have another argument, because I've got people here that
23 are trying to push PRA and everything, and the thing is you can't --
24 one, the way I define it, you have a loosely coupled system, and PRA is
25 wonderful when you have tightly coupled systems. The system is loosely
coupled. You can drop a bundle out in the yard and it won't make a damn
bit of difference to the pallet presses or a lot of the other things you
do, where in a reactor you disconnect the -- your output transformer
& from the low-power lines and you immediately cause control rods to go
in. That's a very tightly coupled system. And I agree with that. So I

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1 understand.

2 But that was one of the things. If I turn it around and say
3 each licensee shall provide a level of protection as commensurate with
4 instead of the severity the risk of the consequences resulting from
5 credible accidents and the likelihood of external events, does that do
6 it?

7 See, I'm looking for words.

8 MR. SILVERMAN: And, Carl, I think you're exactly right, in
9 terms of focusing on that section and the words, because what I'm
10 hearing in several meetings now is no one's saying that they don't want
11 this rule to be risk-based, and we are all trying to focus on risk, and
12 I also agree with Tom Cox that when you look at the table in the SRP
13 that kind of describes in fairly great detail how you would have someone
14 go through this process of identifying items relied on for safety, there
15 clearly is in my view -- I'm not a technical expert -- a risk analysis
16 going on there. It is the language in (c) where we -- and maybe some
17 other areas, but (c) is a big issue where we are having problems, and I
18 do think if this language were modified to use words like "risk" and to
19 use words like "consequence times likelihood" perhaps --

20 DR. PAPERIELLO: That's what I want to get in here,
21 because I think we all agree.

22 MR. SILVERMAN: I think that would solve a multitude of
23 sins. That's my own personal opinion.

24 DR. PAPERIELLO: And then go down to the measures used to
25 instead of saying "assure continuous availability and reliability" "to
assure their availability and reliability when needed." Because I think
that's what we meant. I don't think anybody expected you to maintain a
certain, you know, moderator, but you've got to shut it down and wash it
out or something.

I'm being a bit facetious, but, you know, it's -- I guess

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1 what I'd like to do with this section here, rather than us argue
2 philosophically, because I really don't think -- standard review plan
3 may be a different issue. I'm trying to break it down into pieces so I
4 can fix problems instead of trying to solve -- I'm not trying to lower
5 the water in a swamp. I'm just trying to keep it out of the boat at
6 this point.

7 I guess what I would do is two things. I'm going to go back
8 to my -- I mean, as I said, I wrote a few words here, but, you know, me
9 saying I'm going to actually, you taking a look and writing it down and
10 say whether I like that or not is something different. What I would
11 really propose to do on this one, at least for the rule, I'm not --
12 putting aside the standard review plan -- I'm just taking the rule -- is
13 I'm going to ask my people to modify the words. I would ask you to do
14 the same thing. And let's see what we can come up with. Because, I
15 mean, we don't have that many words. I mean, this is what we're talking
16 about here. We've probably got less than 100 words. What can we do?
17 And we seem to be saying the same thing, I think. But we need to turn
18 around. What words would look right here?

19 You know, I'm not going to put you on the spot and say would
20 these words do it, because even though I say that, you've really -- to
21 be fair to you, you need to turn around and look at, you know, see it
22 written down. Because I don't feel I have a, you know, a lot of -- just
23 like chemicals, I don't think we really disagree. It's just whether or
24 not the words -- putting aside the details of the standard review plan.

25 Is that fair? I mean --

MR. VAUGHAN: Yes.

DR. PAPERIELLO: Yes?

MR. VAUGHAN: Yes, that's great.

DR. PAPERIELLO: Yes. Because your definition of risk is
certainly the same as mine. If we're not getting there with the words,

1 then what words will get us there?

2 Well, that's what we would do, we'd put them out on a web
3 page. Or you do it any way. We could send you a letter, something like
4 that, with the same thing. Do it both ways.

5 MS. EYCK: We're proposing that maybe the web page might be
6 the good vehicle to do this, because we want to use the web page as a
7 vehicle that we can propose language and we can get comments in from
8 everybody and let them know the process that we're going through to
9 resolve the differences that we now have.

10 DR. PAPERIELLO: Anyway, it seems to me we can -- I can at
11 least do this in a couple days. I mean -- my own staff will probably
12 argue with me that I'm wrong.

13 MR. KILLAR: We agree with you, Carl.

14 DR. PAPERIELLO: You know, because it's just -- you know,
15 we've been arguing in a lot of -- I don't want to say arguing -- I don't
16 want to say it in a negative sense, but we talk about this stuff, it
17 seems like -- it sounds like we agree, but the words don't get us there.

18 QUESTION FROM THE AUDIENCE: I just want to offer in the
19 context of the language, one of the things in looking at what the
20 consequences are, you may be able to decide just looking at the
21 consequences that they're a no never mind, don't waste a bunch of time
22 doing an analysis. So the context of doing the risk is once you decide
23 you've got a consequence that's not tolerable in either the context of
24 Part 20 or if it's a nuclear risk or a chemical risk that's affecting
25 nuclear safety, the consequence may not be worth pursuing in terms of
it's below some acceptable health threshold, and therefore don't do a
big analysis. It's self-evident that it's safe because of the level of
the consequence inherent in whatever the hazard is.

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So the logic of looking at each is, number 1, it may be such
an incredible event, for example, and earthquake, why do an analysis of

1 the consequence if the earthquake is 10 to the minus 8, why pursue it.
2 The same thinking goes with the consequence. If the consequence is so
3 small, don't do a big analysis to come up with a risk, because you can
4 live with the consequence.

5 MR. VAUGHAN: Your point's well taken. I think the teams at
6 the sites that are actually implementing this are using that approach.
7 In other words, they're not doing an analysis just for analysis sake,
8 and when the develop enough information to give them confidence that it
9 is indeed a low-risk situation, then, you know, that's about where it
10 stops.

11 Okay?

12 DR. PAPERIELLO: Good. Thank you.

13 MR. GOODWIN: Is George Bidinger still here? Do you want to
14 present?

15 MR. BIDINGER: Just as a follow-on to this morning, Ted cut
16 us off for lunch, which I agreed with. But there was somebody I noticed
17 standing at the podium over here had a question. Are there any more
18 questions on this morning's presentation from the NCSD?

19 DR. DAMON: I was the one standing. This is Dennis Damon
20 again. I was the one standing at the podium. I just wanted to mention
21 that something that might -- there may be some people in industry who
22 may not be aware of this, but the Commission, in response to the
23 Administration, sent to Congress a strategic plan in which there is a
24 safety performance goal related to criticality.

25 It says, this performance goal is that there should be no
inadvertent criticalities involving licensed material. And that works
its way into the SRP and into this discussion, in that, when you do
start thinking about the frequency or likelihood of occurrence of
criticalities, what that says to me is whatever you choose has to be low
enough so that you do not expect to see one happen in the industry in --

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1 what, 50 years, 100 years? Something like that. That's what it means
2 to me when the Commission says that.

3 You know, in other words, if someone else's interpretation
4 of double contingency is that it is acceptable to have a criticality
5 somewhere in the country every ten years, I say the Commission's goal
6 says that they don't accept that, that it has to be better than that.
7 And so we are bound by that, at least I feel bound, that I have to make
8 the quality level that corresponds to double contingency such that it
9 will meet that goal.

10 And the other thing is it definitely was not the intent of
11 the ISA chapter, and especially as related to criticality, that you
12 would do PRA. In fact, if you look at -- what it is, is it was
13 structured to permit you to do it, if you chose to do so. And the
14 numerical values that were used -- rather used in reverse, they were as
15 a guideline to get you to something qualitative and objective that you
16 could assess, and that is the middle column in Table A-3 of the appendix
17 to the ISA chapter, where it has controls listed in terms of whether
18 they are an administrative control, active control, passive control.

19 And that is the objective here is to get -- is to not have
20 people have to do anything except stand there and use that as a look-up
21 table. It is a cookbook, but it is a cookbook that the person who is
22 using it applies with the judgment, the experience and the expertise of
23 someone who is familiar with the system and the plant. But it is not --
24 it is definitely not PRA and, personally, we are not interested in
25 numerical numbers, and we are not interested in adding up things across
the plant. We are really interested in each system by itself.

MR. BIDINGER: There's a couple of things. I think if we --
speaking for the NCS&D again, we think that criticality safety does not
need to be put into that emotional area of just an unallowed accident.
I think if you look at other parts of the nuclear industry, if you

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1 looked at radiation sources and how they have killed people, it would
2 probably be an industry that would be out of business.

3 In terms of the guidance that you mentioned on PRA, the
4 guidance is that you have to have a control of 10 to the minus 2 and a
5 control of 10 to the minus 3. Those are arbitrary numbers. 10 to the
6 minus 5 is impossible to defend, I think technically, but even so, why
7 couldn't it be 5 controls of each 10 to the minus 1. It is much too
8 prescriptive, as well as improperly considered in the first place. So
9 there's a lot of things.

10 On the double contingency, it says one of the two controls.
11 Well, with double contingency, you may have umpteen controls. There's
12 nothing in double contingency that says -- so there are a lot of
13 technical flaws in the application -- in the guidance to the staff in
14 the Standard Review Plan.

15 DR. DAMON: Well, I would agree that the language in that
16 area can probably be improved. But it is also true that -- I think the
17 point that was trying to be in that section in the chapter, which,
18 again, I say I didn't write, but the double contingency principle says
19 both -- you have to have at least two unlikely events. So what they
20 were -- the point that was trying to be made there was that you could
21 not have one event which was extremely unlikely and one other that was
22 going to happen every week, or it is a 50/50 shot. Both of them, you
23 have to have two unlikely. So that is all that was trying to be
24 achieved there, and I agree that the words may have to be tuned up to
25 get to that.

MR. BIDINGER: If there are no more questions on this
morning's, I will switch hats. I now want to speak for [Tom McLaughlin](#).
Tom is the Group Leader of Criticality Safety at Los Alamos National
Laboratory. Tom felt inclined to comment because in the -- I think it
is in the Statement of Considerations, there is some reference that

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1 these rules might apply to DOE facilities in the future, and he is at a
2 DOE facility and felt so inclined.

3 Tom has been at the laboratory for about 30 years. The
4 first ten years he spent performing critical mass experiments and doing
5 reactor design and research. In the last 20 years he has migrated into
6 the field of criticality safety and is the Group Leader.

7 In Tom's way of looking at things, he is presenting first an
8 [overview](#) in [his letter](#). I have already given the letter to Ted, and a
9 copy of these viewgraphs. But, in essence, he looks first at 10 CFR 70
10 and he sees that it talks about risk, but it focuses on
11 consequence-based regulation. And then he talks -- he has many
12 questions about the graded approach, because it focuses on the worst
13 case in all cases. But as far as risk is concerned, it is consistent
14 with the ANS-8 standards. We will call them deterministic, but we think
15 they are really risk-based, performance-based. And he does agree with
16 the performance, risk-informed concepts, however, he says the devil is
17 in the details.

18 With the ISA, he calls it an excellent concept, but he is
19 concerned about the detailed requirements, paper submittals, delays in
20 approvals, very expensive for the industry, if they had to live with all
21 the paper work that is potentially required by the proposed rule.

22 He looks at the Standard Review Plan and he sees details,
23 details, details. He questions the basis for specific values and draws
24 implications on costs, manpower and worker safety. That's the same
25 issue that Dr. Kouts mentioned in his recommendation to DOE in 97-2 and
be brought up at the ASME meeting this last month.

Again, he focuses on, looking now at [some of the issues](#) in
more detail, criticality accidents as defined as a high consequence
& event. Where is the graded approach? Many criticalities will not have
high consequence. The track record shows that there have been -- most

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1 of the criticality accidents have had little or no exposure.

2 As far as quantified risk assessment is concerned, the data
3 do not exist to support its use, it simply cannot be done. There are
4 some aspects of PRA that could be done, but in terms of a total
5 database, it does not exist.

6 Unfortunately, my printer doesn't do justice. These were
7 nice Southwest colors on what he sent me on the computer, but I had to
8 use my old printer, so it doesn't do justice to Tom's work.

9 As far as the [Integrated Safety Assessment](#) is concerned, it
10 is an excellent concept, he agrees with it. It is consistent with the
11 philosophy of ANS-8 and the standards that they have written, and it is
12 consistent with the DOE philosophy in criticality safety. Although, I
13 think in reading more in Tom's, he consider the ISA to be more like the
14 SAR that is provided to DOE and becomes, basically, their authorization
15 basis. You see that in his comments as we move on.

16 [For 70.62](#), ISA requirements for new processes, submit the
17 results of the ISA. That has severe implications on required actions
18 documentation -- and documentation prepared to current practices. He
19 finds that this would be an unbearable on them. It would slow down
20 their approval process and end up in regulatory costs that are not
21 defensible.

22 He questions the baseline design criteria. Licensees shall
23 maintain appropriate records of these items throughout the life of the
24 facility. A literal interpretation of this would be that he would have
25 to maintain records for cans, dissolution pots, filter boats, the like,
which there is no reason to maintain such information for the life of
the facility. The requirement is much broader than reason would
dictate.

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[In Appendix C](#), he talked about the reportable events,
deviation from safe operating conditions. It has the potential, as

1 identified in the ISA, again, he is concerned that there is no graded
2 approach. A 1 percent over-mass limit would be just as reportable as a
3 10 over-mass limit, as a 100 percent over-mass limit, as a 200 percent
4 over-mass limit.

5 DOE has gone through this in a painful manner. Bert
6 mentioned that this morning, but the graded approach on report needs to
7 be worked into the regulation and into the SRP.

8 He also talks about the Standard Review Plan. The applicant
9 shall conduct and maintain an ISA that identifies specific control
10 parameters. He feels that this should be in a SAR document and that
11 there should not be a detailed ISA treated as a regulatory document.

12 In summary, the documentation reporting requirements appear
13 to require excessive detail far beyond current NRC or DOE requirements.
14 If this is true, worker safety will likely suffer as scarce criticality
15 safety professionals will have even less time available to interact on
16 the floor with operations personnel.

17 Some of the SRP requirements that he mentioned, and I may
18 have these two out of -- okay. It says at least one of the two
19 controlled parameters dealing with double contingency. As I have just
20 mentioned, there should be no limit on the number of controls that are
21 used to satisfy the double contingency. And, in fact, it is a rare
22 situation, indeed, when only two controls are used or available. Even
23 when you have engineered controls, there are still administrative
24 controls to make sure you have the engineered controls, and they just
25 compound. But that idea that you only need two controls puts the
reviewer into counting controls and he forgets that he is really looking
for subcriticality.

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The NCS limits, I have already mentioned that. Those
limits, 45 percent and 75 percent, are not in a peer reviewed document
and they certainly are not in any ANS-8 standard.

1 Finally, his final comment is that the reviewer will
2 determine that the NCS review of the ISA includes a review of the
3 potential accident sequences that result in inadvertent criticality.
4 Here all accident sequences have to be considered, not just the worst
5 case accidents, and they have to be maintained for each operation, all
6 sequences. It is contrary to DOE guidance and it is prohibitively
7 expensive to do such a thing.

8 So those are the viewgraphs that Tom supplied. The letter
9 is more detailed. He could not be here to speak for himself. I
10 appreciate your time. I will certainly try to answer any questions, but
11 I can't be in the mind of Tom McLaughlin, but I will try.

12 MR. COX: I would just to like to -- I can't believe Tom
13 McLaughlin would say that a criticality should not be a considered a
14 high consequence event. I mean I can see where, in his environment,
15 where he is working with high enriched metal or plutonium, that in a DOE
16 establishment, it may be true that they have quite a few criticalities
17 and people don't get killed, because metal criticalities can be quite a
18 low yield event and, in addition, in a DOE op. environment, people may
19 not be near where the SNM is.

20 But if you go into any of the facilities we regulate,
21 typically, there is somebody standing right next to where the SNM is.
22 So, if there is a criticality there, and it is a low enriched oxide
23 solution, thermal type system, they are going to be dead. That's all
24 there is to it. And that is a high consequence to me.

25 MR. BIDINGER: I am getting into an area where I am going to
tread with trepidation, but I think Tom would make the argument that
most of the accidents are indeed not high significance. Most of the
accidents are not prompt critical. With criticality alarms, people, if
they are few feet away, can evacuate safely and survive. That Tom is --
I had a discussion on this, because Tom was going to put in another

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1 letter from ANS-8 Standards Committee, but he didn't have enough time to
2 do it.

3 But, as a part of his work, he has been reviewing all
4 accidents in this country and gathering information from the Russians on
5 their accidents, and he describes most of them as not consequence
6 events. Primarily because of the physics of criticality, you don't get
7 the prompt bursts, you don't get the large bursts. And the physics of
8 criticality is very important, both in understanding what criticality
9 and in the shutdown mechanisms for criticality.

10 Tom, I think, would take you on and could argue it much more
11 eloquently and much more strongly than I can.

12 MR. ROTHLEDER: George, I would like to mention that there
13 are two definitions, or two views of consequence. There is another view
14 of consequence which we don't like to talk about here, but we are faced
15 with, and that is the political consequences. If there is a criticality
16 accident and nobody is injured or nobody is hurt, but there is such an
17 accident, there will be investigations for years by both Houses of
18 Congress, by the Executive, by the agency, or agencies involved, and it
19 will be nightmare. It will detract from safety, certainly, and be a
20 real problem. That is a consequence that we want to avoid. And so, in
21 many people's minds, that is why a criticality accident is not tolerable
22 in any way.

23 This requirement of such a low consequence on that basis,
24 makes the risk -- and, again, risk here gets redefined to not tolerable
25 either, and that is one of the driving forces behind the large amount --
the large effort in preventing criticality in any way, shape or form.

One of the things that Tom is referring to, however, is that
if you have a criticality occurrence in a shielded facility, there is no
-- there is no risk to personnel, and that is perhaps tolerable. We do
have, in DOE, facilities, many shielded facilities, many hot cells.

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1 Another point I would like to mention is that, in approach
2 external regulation, we find that DOE and NRC are finding that there are
3 differences that must be resolved in the way the NRC approaches things
4 and the way DOE does, because there are different facilities, different
5 types of facilities involved, and many of the facilities that DOE now
6 has responsibility for were under the old AEC, and maybe under ERDA, but
7 many years have passed and the NRC simply hasn't deal with the
8 facilities, essentially, not dealt with them at all, because so much
9 time has passed. And so this is a difference that must be resolved. I
10 think this is part of the concern.

11 MR. BIDINGER: Well, I think that gets into the regulatory
12 issues, but in terms of criticality safety, the ANS-8 standards are
13 applicable equally well to the DOE facilities and the NRC licensed
14 facilities. They all were licensed by -- I think they were all licensed
15 by the AEC originally anyway, so.

16 But criticality safety -- regulatory issues are different,
17 but criticality safety, per se, should not be different in the different
18 facilities around the country.

19 MR. SHERR: Thank you, George. I guess that is your third
20 hat for today.

21 MR. BIDINGER: Yes.

22 MR. SHERR: Okay. One thing George has given is he
23 mentioned he gave me two letters, one from the [ANS](#) and one from [Los](#)
24 [Alamos](#), and both those letters will be put on the web site.

25 It is now 2:15. We will take a short break, and if we can
reconvene at 2:30.

[Recess.]

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MR. SHERR: If we can reconvene, please. The suggestion has
been made, before we proceed to the final two items on the agenda,
instead of pursuing those today, we would save those for tomorrow and

1 talk a little more about some of the proposals that have been talked
2 about so far, and maybe providing a basis for further discussion
3 tomorrow and maybe we can make progress in identifying some appropriate
4 word changes.

5 MR. KILLAR: What we thought we would do -- you know, we
6 have had some fairly some good discussion this morning on the various
7 topics that we have presented, but there didn't seem to be any direction
8 towards closure on those issues. And so we thought it would be better
9 if we spent a little bit more time talking about some specific wording
10 and what-have-you, just for the purposes of laying down what is the
11 direction we are going in, and then taking those away with us this
12 evening and, basically, sleeping on them, thinking about them more, and
13 what issues are, and then come back in the morning and see if we can
14 then go to some type of closure on it so we can move forward on those.

15 To start that discussion, I think probably chemical safety
16 was the one that we started off with this morning and probably the one I
17 hope that we are closest to closure on. And if Bill is down there, if
18 Bill would mind just -- do you have your slides, Bill, just on the
19 issues that we suggested as far as how to address the chemical safety in
20 the rule?

21 MR. SHARKEY: Yeah.

22 MR. VAUGHAN: Felix, I think we ought to -- I mean I agree
23 that if we can work on words and things right now that might help get
24 this thing fixed, then that it is smart. But in cases where we can't do
25 that, I think we also ought to consider what are options are for working
this through as we go through, because the schedule is very critical
both for the NRC and for industry. And so if aren't able to necessarily
come to pretty good closure here, we ought to have a plan that would
facilitate getting to closure as quickly as possible.

I just said the only thing -- the only thing that was

1 initially said is that we look at the presentations and see if there are
2 wording changes or things that we can work with or consider, and I just
3 said, if we can't solve it that way during this session, that we ought
4 to include a discussion of what our options are to resolve some of the
5 issues.

6 MR. GOODWIN: I think specifically we need to understand
7 what the process will be, or what we can make it be in order to reach
8 that closure.

9 MR. KILLAR: As I understand it from this morning's
10 discussion, the NRC will take this input, go back and look at the rule
11 and put out on their web site the revised rule with various options
12 identifying their preferred option for different approaches to an issue
13 such as a chemical safety, and people will be given the opportunity to
14 provide comments through the web site on that proposal.

15 I guess our concern, and we discussed a little bit earlier
16 today over lunch, is that that is good, but we are not sure whether that
17 is going to really meet the needs of both the NRC and the industry, that
18 it may be worthwhile having a structured meeting, to go through and have
19 a face to face discussion on those, because similar to our discussion
20 earlier on criticality, what you intend by the words you put, versus
21 what we read when we see those same words, we may not be getting the
22 same level of agreement on what those words say. So we would like to
23 see some type of iterative process, if possible, and if you can
24 elaborate on your ability to provide that and your schedule to meet the
25 demands of the Commission.

DR. PAPERIELLO: I think we can provide an iterative process
within the time constraints that we have. What I mean by that is, you
know, if we take words and we put them out, and either as such, say this
looks like an adequate revision -- you know, we may not even put option.
We may say that we have heard the industry comments and we think this is

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1 what their position is and we think these words will do it. You come
2 back and say, no, we don't. Then we would have to go through it again.

3 I would prefer that if we make an iterative change in words,
4 like the issue -- I think you did a good job on chemical safety, because
5 you came back and say this is what the word. You know, I see that issue
6 right now, the ball is in our court. In other words, we had meeting, we
7 talked about it, I asked you to provide words, you provided words. We
8 have talked about them today now. It is up for us to say, hey, can we
9 live with these words, or do we have to say, well, we can live with
10 them, except that, you know, -- so we converge on the whole thing. So I
11 think the idea of coming to convergence on issues is one that is good.

12 Now, let me just talk about chemical safety, because that is
13 a good example. There are a couple of things I need to consider here.
14 One, we got into this whole business a decade ago because of certain
15 events, and certain decisions made by the Commission back in the mid to
16 late '80s.

17 Since then, one of the things you said, which is true, is
18 there are other players in this, there's OSHA and there's EPA, and there
19 is a process for controlling certain risk out there that may not have
20 been around ten years ago. So I could go to the Commission and say,
21 okay, these are the words the industry has offered. We have looked at
22 it, we have looked at the MOU, we have looked at things and say, hey, we
23 can live with them if you can live with them.

24 What it will mean, there might be a class of events which we
25 are not -- is clearly going to be within the purview of EPA or OSHA.
The NRC will not send an inspection team and, in fact, if we get called
by the newspapers, you know, it is going to be a decision that this is
theirs and not ours.

You know, I am just saying that is the kind -- if they can
do that, then I can live with the words, because what I am trying to do

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1 is meet a policy that was defined, you know, ten years ago, and, so, you
2 know, that's -- and I don't, you know, I know what you have said here,
3 and I know some of this, but I just don't what the detail. It seems to
4 be consistent with the SRM I have where the Commission is telling me to
5 clarify the use, particularly in the context of the MOU and finding out
6 what other agencies do.

7 So, you know, I think you have done a good job there. It is
8 now up to us, and the way I am going to resolve is say, hey, this is
9 what this would all mean, and we will, you know, through the
10 Commissioners' assistance, talk to the Commission, you know, will you --
11 is this okay?

12 If that's okay, it seems to me that we got ourselves a fixed
13 situation. Now what I would like to do is I would like to go forward
14 with that.

15 One of the things that we have talked about outside is would
16 the industry be willing -- let's take one section of the Standard Review
17 Plan, Training. It is eight pages long and clearly something, putting
18 aside whether or not we ought to do things like maintenance, training is
19 required by Part 19 but it is also required by Part 70 for areas of
20 emergency preparedness and the like.

21 What should that section of the Standard Review Plan look
22 like? Would you be willing to give us -- I don't care what section you
23 would revise -- but one to give us an example of what you think the SRP
24 ought to look like, and to get an example in training.

25 You see what I mean? Yes, I want to iterate but my biggest
problem is the time constraints, and in that process as we iterate, and
the Commission and the SSRM has named contacts because we have done this
in other rules. We did it for the approval of the privatization for
& U.S. Enrichment Corporation when we needed a fast decision.

We constantly kept the Commission informed of how we were

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1 proceeding and getting guidance from them on what they would accept and
2 not accept. Okay? So just as you need to consult with -- among your
3 own, yourselves, I have to consult with the Commission on this sort of
4 stuff, but no, insofar as we can do it and still meet -- somewhere along
5 the line where there's irreconcilable differences I am just going to
6 have to tell the Commission about the irreconcilable differences and
7 they are going to have to make a decision on where we go.

8 Does it sound reasonable? I mean --

9 MR. KILLAR: It certainly sounds reasonable. I don't have a
10 concern with that. I still have a little bit of concern with the
11 timing.

12 What type of turn-around can we anticipate from seeing these
13 things showing up on the website, things like that, particularly with
14 the holidays coming up? Are we basically going to lose December or are
15 we going to be able to see something a week or so after this meeting to
16 where we can really start looking at your reaction to what we have
17 provided?

18 DR. PAPERIELLO: I don't know --

19 MS. EYCK: We are planning to turn these things around as
20 fast as we can.

21 As was mentioned earlier, we have a dedicated task force
22 working on this and I think what our plans would be is that as we come
23 up with proposed solutions to each of these individual things, we are
24 going to bounce them out to you on the web and not just wait until we
25 have got an entire package, so I would anticipate that you are going to
be seeing some input that addresses some of the topics we have discussed
today before the end of the month. That's for sure.

MR. VAUGHAN: In that regard, do you all have a schedule
that you are shooting for as to what is going to come when?

MS. EYCK: Well, a lot of it was based on the meeting today

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1 and to determine what the issues are and how close we were for
2 resolution. At this point we are working, as Ted mentioned today, to
3 have all of the -- try to finalize all of the rule activities before I
4 think it was mid-February and that would be the closure point on that
5 for us to be able to meet all of our commitments with meeting the SRM so
6 I think we are going to be getting these things out to you as soon as
7 possible and it is a question of how easily we can resolve or how
8 quickly we can resolve these issues and we'll depend upon what the
9 timeframe is.

10 It's just kind of hard at this point to come up with certain
11 dates on things when it is a question of how close we are to resolution
12 on the issues, and we really didn't know that until the meeting today.

13 MR. VAUGHAN: Right, and the reason I asked that is we are
14 toying with how we are going to respond in terms of what the NRC is
15 asking for, and we kind of need to -- I mean we might adopt an approach
16 that we are responding on things out of sequence and well out of phase
17 with the items that you are -- we would like to get closer, as closely
18 coupled as possible. We may not get it perfectly close.

19 MS. EYCK: I would hope before the meetings terminate today
20 or tomorrow that we have identified which items you all might be taking
21 the lead on and which items we would be taking the lead on. I mean at
22 this point I think that as Carl has just mentioned that maybe if you all
23 take a chapter of the SRP and come up with something that you can give
24 back to us so we will get a flavor of exactly what level you are at,
25 then we won't be working on the SRP.

We are going to be working on the rule language and the
issues identified in the rule, and we'll be putting them on the Web.

I think it's going to be counter-productive if we are both
trying to solve the same problem and then come up with two different
proposals. I would hope that when we leave here we would know what

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1 things we are waiting to have input from you and just like on the ISA
2 thing, we are still waiting for your input on what your concerns are
3 with the ISA summary that I know Felix has promised us and we are going
4 to be getting some time in the future, so I think we'll have a clear
5 understanding of who is taking the lead on what topics.

6 MR. KILLAR: Sounds good. I think we are certainly moving
7 in the right direction.

8 I guess the concern I still have is somewhat if we could sit
9 down and look at a timeline or what have you, you know, you have given
10 us some dates and cutoff dates and when you look at it mid-February --
11 well, I know mid-February looks like a long way off. It's not that far
12 off, particularly with the holidays and stuff here, and we are concerned
13 that we do get through these issues and get through them and have the
14 input that is meaningful to you to help you do your work as well, so I
15 think that's certainly something worth going forward on.

16 Maybe to move on, I guess we have provided some suggested
17 words on the chemical safety and so I think that is certainly one that I
18 don't know if we need to spend any more time talking about what those
19 words are. I think you have captured them fairly well, unless there are
20 any specific questions about the wording or suggestions that we have
21 provided. That would be one that you may be able to take off with and
22 similarly on criticality safety I think that also as a result of looking
23 at 70.60(C) and stuff I think we have got some good language, some good
24 words there if you'd go off and look at those.

25 Do we have some other sections that we wanted to write some
wording on, that we provided this morning that we need to incorporate?

MR. SILVERMAN: I think you just identified the two areas
that it looks like we could move quickly on from my sense.

There's a lot of discussion about the various sections of
the SRP and I guess we have to figure out what the industry can provide.

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1 MR. KILLAR: One other one that we did provide --

2 DR. PAPERIELLO: Could I? I have your [letter](#) but the letter
3 came in on Monday and so therefore there's not much time to react to the
4 letter, but based on the comments here today, I mean one action -- and
5 we'll take a look at the letter on the Standard Review Plan and respond
6 to that -- but what you can do to help us is, particularly in light of
7 your presentation this morning, is if you took one section -- again, I
8 don't want to say a big one -- a small one, just to kind of "What is the
9 problem?"

10 We think we got to where you wanted us to be. You said no.
11 The question is how would it look different? That is what I am
12 interested in, how it would it look different?

13 I did notice, by the way, you were -- you didn't have any
14 concerns with the [Radiation Protection section](#).

15 MR. KILLAR: We knew that was your expertise and stayed away
16 from that.

17 [Laughter.]

18 DR. PAPERIELLO: Well, I went through here and I checked
19 which ones you didn't comment so -- but -- so it's not a complete loss,
20 but, you know, just to get an idea of what it would look like from your
21 perspective, that's all, so we would then -- rather than going back, if
22 we don't like it, well, it gives you a chance to make it look like what
23 you think it ought to look like.

24 I'm serious. I am not trying to --

25 MR. KILLAR: I think we got that message and we are going to
go and do that.

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There is one other section that we did mention in my
presentation. That was the [SRP section on Decommissioning](#), because we
do see that there's quite a disconnect here.

DR. PAPERIELLO: I read that. I'll take that under

1 consideration. I know what you read. I have to take a look at what's
2 in there and then take a look at the -- at, you know -- I recognize
3 there's -- I guess if we don't need it, I don't see why we are asking --
4 if in fact it does what you represent it, as a complete decommissioning
5 plan at this point, many years before you are going to do it, it doesn't
6 make a whole lot of sense. You need to do enough to price it out but --

7 MS. ASTWOOD: I don't think that was ever the intent of that
8 part of the SRP.

9 That section was intended to show that there are things that
10 you would have to do at the time of the decommissioning or during
11 license amendments you do have to submit a decommissioning plan, which
12 some of you do have to do -- and another thing you have to do for your
13 decommissioning, financial assurance plan. I don't think it is fair to
14 twist language -- I think decommissioning is something that should be in
15 the SRP and is something that your license amendments are reviewing.

16 MR. KILLAR: I agree with you as far as the funding plan as
17 part of the license commitment, but under 70.38 you get into the
18 timeliness rule and decommissioning if you are trying to release a
19 portion of your site, and then that gets into the other aspects of it,
20 and the problem is that when you try to commingle those under license
21 conditions over an operating facility it doesn't make sense.

22 That is where we have the disconnect.

23 Liz, you mentioned [training](#). Is there any other areas in
24 particular? I know we are holding [the ISA](#) in abeyance right now. Is
25 there any other areas in particular that you would like additional input
on or would like us to focus on?

I know one thing that we have not spoken to at all, and that
is the reporting requirements and we have looked at that and we do feel
that it is somewhat of a burden above and beyond what we have been doing
but we have not spent the time to go through and identify where the

1 specific problems are but that is something that we have been holding in
2 abeyance but it is certainly an issue --

3 DR. PAPERIELLO: I recognize that.

4 MR. VAUGHAN: I have been looking at what we have been
5 talking about and drawing little pictures and I think what LIZ said has
6 a lot of merit to it, because we are on a course that kind of says that
7 the rule language now is in NRC space and criticality safety, we have
8 talked about it generally but we think that there's probably the rule
9 space again is in the NRC's court but we have identified a need for the
10 practicing criticality engineers, et cetera, to get together and work
11 out some of the details, so that is in a workshop space.

12 Chemical safety that we talked about today is in the NRC
13 space. We just talked about decommissioning and it sounded like
14 decommissioning was in the NRC space, so applying that model works
15 pretty good.

16 We haven't talked about ISAs yet so we don't know what space
17 that will go in, and I can tell you that the management control section
18 has a lot of meat in it and how we get to the bottom of all that and
19 what space it goes it I don't know but it has a lot of content.

20 You know, there's environmental management, fire safety, a
21 few other things on the list that we need to talk about who is going to
22 do what to who, but it sounds like this partitioning so we are not
23 working against each other but we are working with each other and keep
24 it flowing is going to work.

25 DR. PAPERIELLO: And something we can do -- I mean before I
tackle the entire Standard Review Plan at least in terms of how it is
written, first, there is a question of whether certain things are in
their appropriately.

You have raised the issue about -- and I am not trying to
reflect on anybody because I haven't read this thing in detail to

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1 know -- I read what you have said about decommissioning, okay? -- so
2 let's take a look at what's in there on decommissioning.

3 Before you do anything with it, I would like to turn around
4 and see what my reaction to the contents of it are.

5 I don't think in terms of style -- I mean you could take on
6 whatever you want to take on, but for my purposes I would pick the
7 section that I said, training, looked fairly short. When I looked at QA
8 I saw that's godawful long, so with help if we find that we get an idea,
9 because we thought, at least the Staff thought that we did have an
10 adequate connection between the ISA and some of these programs and you
11 didn't.

12 This gives you an opportunity to do that.

13 I am afraid if we take on too much in a Standard Review Plan
14 right now, we are not going to get anything done. The rule is just
15 fewer words. I am counting the number of words in the rule. If I can
16 straighten that out, that sort of takes -- there are things that have to
17 be done.

18 I have to get a lot more concurrence and agreement with the
19 agency on the rule than I do have to on the Standard Review Plan so if I
20 can get the rule language reasonably well locked up by February, we can
21 still continue to work on the Standard Review Plan, particularly if we
22 have reasonable confidence that we are on the right path on the Standard
23 Review Plan in terms of how it is going to look.

24 MR. SHERR: I have two suggestions.

25 One matter is on criticality. The notion is there are some
problems with the rule language on criticality. Maybe I'm dense, but it
is still not clear to me what rule language is of concern -- so I would
very much appreciate it if you provided, at least identified what is the
language of concern and at least an approach to how that language could
take care of it.

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1 MR. VAUGHAN: I thought that Carl did -- maybe he didn't
2 have exactly the right words but I think what he was suggesting
3 certainly aims at what is bothering us in the rule.

4 I thought we had agreement.

5 DR. PAPERIELLO: That's what I thought.

6 MR. VAUGHAN: That's what I thought.

7 MR. SHERR: The specific section I believe is 70.60(C).

8 MR. SILVERMAN: Which goes beyond criticality and I think
9 when you think about -- I think what these folks are saying, the
10 criticality-specific issues, specific to that issue, are more found in
11 the SRP than in the rule itself.

12 There is this general problem in the rule of it not being
13 sufficiently clear that it is a risk-based rule overall, and that is
14 70.60(C) we are talking about. That covers criticality as well as a lot
15 of other things, so I don't think --

16 DR. PAPERIELLO: That was the reading I had. In other words
17 if we fix 70.6(C) we would fix the rule but then you have got to go
18 down -- the devil's in the details -- and you have got to go down into
19 the Standard Review Plan and deal with a number of issues.

20 First, in dealing with how you handle double contingencies
21 and then going beyond that, what is the level of detail that you need.

22 MS. EYCK: If I can just reiterate what Charlie has said and
23 maybe we can kind of focus, and correct me if I am wrong, but what I
24 have identified here is that NRC will take the lead on making any
25 proposed changes to the rule.

The Nuclear criticality safety we are going to be awaiting
the workshop before we proceed on trying to address the changes to that,
with the exception of the rule changes that we'll be making.

On the chem safety SRP I think we can take a stab at moving
ahead and trying to address some of the changes there because you had

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1 suggested a number of changes to the SRP in that area and I think we can
2 focus on that.

3 On the decommissioning area in the SRP, NRC will be looking
4 at that.

5 The ISA we are going to wait for your comments.

6 Reporting requirements, we are going to wait for your
7 comments and on some proposed chapter of the SRP, whether it is training
8 or whatever, we are going to wait for you all to provide your draft of
9 what -- where you would like to see -- or the level of detail that you
10 would like to see in the SRP.

11 Has that encompassed all the things that we are going to
12 move out on, or does anyone else have any other suggestions or comments?

13 MR. VAUGHAN: I think that is about the way that we see that
14 right this minute, but then there are other things that we need to talk
15 about in terms of how to address them, but as to where we are in the
16 thought process right this minute, that seems to be correct.

17 [Discussion off the record.]

18 MR. KILLAR: Just for everybody else, now that I have walked
19 between the tables, what we have decided we'll do is that each of the
20 organizations and entities will go off and caucus as to basically what
21 we have heard today, and we will reconvene tomorrow morning at 9 o'clock
22 here, and we will go on with the discussion.

23 If there is anything in the caucus that we need to clarify
24 based on what we talked about today, we will do that first thing, and
25 then we'll go on to the discussion of the ISA.

MR. SHERR: There should be on the table outside, as you
leave there should be copies of the briefing charts that were used
today.

[Whereupon, at 3:19 p.m., the meeting was recessed, to
reconvene at 9:00 a.m., Friday, December 4, 1998.]

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NUCLEAR CRITICALITY SAFETY

SYNOPSIS OF PROPOSED PART 70 REVISIONS

- Nuclear criticality is a high consequence of concern
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 - i) i) entify cre) i) le acci) ent sequences
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