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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
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MEETING ON A POTENTIAL RULEMAKING FOR SPENT
NUCLEAR FUEL REPROCESSING FACILITIES

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WEDNESDAY
JUNE 22, 2011

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AUGUSTA, GEORGIA

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The Meeting was held at the Hilton
Garden Inn Augusta, 1065 Stevens Creek Road,
Augusta, Georgia, at 8:30 a.m., Chip Cameron,
Facilitator, presiding.

PARTICIPANTS:

SVEN BADER, AREVA
JIM BRESEE, US Department of Energy
TOM CLEMENTS, Friends of the Earth
SUSAN CORBETT, South Carolina Sierra Club
DENNIS DAMON, US Nuclear Regulatory Commission
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P-R-O-C-E-E-D-I-N-G-S

8:30 a.m.

MR. CAMERON: Good morning, everybody. I guess even though this is Georgia, there was good news from Omaha last night, the Gamecocks won, okay.

And a second public service announcement, the items that are in the -- what's called, I think, the Market Pantry, they are food items, you do have to pay for those, and so, the -- I guess a number of items have been walked off with, so, that's just a reminder.

And in terms of agenda for today, before we get into our first substantive discussion, I just want to see if there is any burning issues, clarifications, observations, questions from yesterday, and our agenda is going to be, we're going to start off with safety, risk and licensing, and we have John Stamatakos, who is over there, who is going to be doing the presentation, and we also have Yawar Faraz. Yawar is up at the table, and Alex Murray and Dennis Damon, who is here with us, are going to be assisting John with that discussion.

This afternoon, we have the security and material accounting and -- material control and accounting issues.

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1 I thought your discussion yesterday was
2 good and coherent, and I'll open the floor to Jim
3 Bresee.

4 MR. BRESEE: Yes, I just wanted to --

5 MR. CAMERON: And we need to get this on
6 the transcript.

7 MR. BRESEE: Thank you.

8 MR. CAMERON: There we are.

9 MR. BRESEE: I wanted to finish a topic,
10 which we started with yesterday. We talked a bit
11 about the difference within the Department of Energy,
12 the difference between what is called spent fuel and
13 what is called used fuel.

14 For convenience only, we have been
15 treating used fuel as fuel capable of recycle, with
16 some potential fuel value and spent fuel, as fuel
17 which has been -- gone through sufficient burn up,
18 that it no longer has economic value and would be a
19 candidate for deep geologic disposal.

20 I'll have to admit that in the discussion
21 of these terms, and they have no legislative basis.
22 They're simply a convenience.

23 But in the discussion of these terms,
24 there were several of us who felt that even the word
25 'used' wasn't a very good description, it has a sort

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1 of broken, worn out sound to it.

2 So, I put forth the idea that we'd call it
3 previously owned. That's enough of that.

4 MR. CAMERON: Like the automobiles, okay.

5 MR. BRESEE: Thank you.

6 MR. CAMERON: So, now, and within DOE next
7 week, it's going to be previously owned. So,
8 everybody is going to be doing that.

9 Okay, thank you, Jim. Mary?

10 MS. OLSEN: You asked for any
11 clarifications, updates from yesterday, and first, I
12 want to acknowledge that I had a prior commitment to
13 teach a class this afternoon. So, I'll be leaving in
14 the middle of the day, and it's not under protest.
15 It's just previously committed.

16 But I do want to state that of all the
17 meetings I've been invited to participate in, in 20
18 years, I really did contemplate not participating, or
19 making some stronger statement than sitting here at
20 the table, because in our view, the actions of
21 Presidents Ford and Carter were stellar moments in the
22 history of our country. They were little, teeny, tiny
23 brights spots of sanity in what we otherwise call
24 nuclear madness.

25 We do not, for an instant, think that the

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1 Nuclear Regulatory Commission can set standards for
2 reprocessing that will not be implemented. Build it
3 and they will come.

4 But as far as we're concerned,
5 reprocessing is the dirtiest part of the fuel cycle.
6 It is considered, in our community, worse than
7 building new reactors, and the whole idea that regs
8 would be set and not used is just lunacy.

9 I mean, go to the page in the NEI paper
10 that talks about certification of operators. Certify
11 that they are mentally, physically and technically
12 fit.

13 Well, NRC, you're flunking that, to have
14 the idea that you're going to write regs that nobody
15 is going to use, and you don't think you're not
16 setting policy? That's a triple negative. You are
17 setting policy, by setting regs.

18 So, I'm yelling at you this morning, and
19 I'm slightly miffed at myself for getting this loud
20 about it, but quite frankly, it's a mild act, compared
21 to what I think many people would peacefully do.

22 You know, anger is one thing. Violence is
23 another. We're really pissed about this. Peaceful
24 action, to oppose it, is what I think you can
25 anticipate, because it is not a right action.

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1 I'm going to say one more thing, and then
2 I'll be quiet.

3 At the moment that I brag on Ford and
4 Carter, I do have to, when I face a room of people,
5 like I was at Clemson, maybe six months ago, talking
6 about this history, I feel some shame.

7 Why do I feel shame? Because it was India
8 getting the bomb that made them have a little bit of
9 sanity about plutonium, but what a racist act. Oh my
10 God. The brown people have the bomb, and so, now,
11 we're going to stop playing with plutonium.

12 But we're still going to have all our big
13 weapons on hair-trigger alert, and we're still going
14 to run the whole world with that supremacy and we're
15 going to make this little, teeny action and say, we're
16 not going to reprocess.

17 And yet, that little, teeny action has
18 been one tiny light on the Hill, that maybe, the super
19 powers could move away from mutually assured
20 destruction and, you know, it just cracks me up, this
21 nuclear threat initiative, that the same guys --
22 that's another whole subject.

23 But the long and the short of it is, NRC
24 is moving towards inculcating the cult of plutonium in
25 the United States, and that's what it is, and it is

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1 the biggest, dirtiest process.

2 And so, the final little update I want to
3 add is that there was a reference to meeting Part 20,
4 and that's all well and good, but I would direct the
5 entire attendance, and those reading this transcript,
6 to page 312 of the Biological Effects of Ionizing
7 Radiation Beer 7 Phase 2 report, where we get Table
8 12D-3.

9 If, in fact, we have a Constitutional
10 Democracy, which we do have in the United States, that
11 goes guarantee equal protection under the law, NRC
12 really needs to look at this table of data reported on
13 health effects, and square that with Part 20, because
14 the data in this table shows that women are 50 percent
15 more likely to get cancer and 50 percent more likely
16 to die of that cancer, compared to a similar dose to
17 men.

18 I just need to add, this isn't our being
19 pissed, okay. This isn't our happening to like to do
20 whatever we like to do. This has to do with
21 percentage of reproductive tissue in the body, and the
22 fact that reproductive tissue is more sensitive.

23 So, as I sit here in the Augusta and South
24 Carolina area, knowing the number of people that I
25 know who are already sick, and knowing just

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1 anecdotally, how many of them are women, and looking
2 at the possibility that NRC is going to open the flood
3 gate on one of the most effluent-rich opportunities
4 for the nuclear industry, to dump more radioactivity
5 into the environment, I want to affirm the comment
6 that was made yesterday, that there is a difference
7 between meeting dose levels and talking about total
8 emissions.

9 And when you look at total emissions from
10 a processing worldwide, and I understand, I'm talking
11 about old technology and you're talking about new
12 technology, but your new technology is not proven. We
13 are talking about massive effluent.

14 So, really, these are not hypothetical
15 actions that NRC is considering taking, and the
16 biggest gap is the health and the future of our
17 species, because women getting more impact doesn't
18 work, for that.

19 MR. CAMERON: Okay, thank you, Mary. One
20 function that these gatherings serves is to allow
21 opinion leaders, like yourself, to give strong words
22 about heart-felt, strongly felt issues.

23 So, we appreciate that, but also, thank
24 you for participating in the discussion on the issues
25 that the NRC is trying to address, also. Tom?

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1 MR. CLEMENTS: Just a quick point. I want
2 to make sure that people knew there was an article
3 today in the Augusta Chronicle, about the meeting
4 yesterday, and Susan and her greenwashing quote are in
5 there, and Rod is quoted, as well. It's online, but
6 you can pick up a copy, as well. Thank you.

7 MR. CAMERON: Okay, thank you very much,
8 and with that, I think we're ready to go to John, and
9 he is going to do the presentation, and then, we'll
10 start the discussion. Thank you.

11 MR. STAMATAKOS: Yes, good morning. My
12 name is John Stamatakos, and I'm going to talk through
13 five gaps, Gaps 5, 7, 9, 10 and 11, and I work at
14 Southwest Research Institute's Center for Nuclear
15 Waste Regulatory Analysis. We're an FFRDC charter to
16 support the NRC.

17 Okay, so, Gap 5, I think, is probably one
18 of the heavy hitters in the group. It's the safety
19 and risk assessment methodology, the approach that
20 would be used in licensing a reprocessing facility.

21 The gap itself is that NRC regulations
22 required licensed facilities to demonstrate adequate
23 assurance of safety, limiting risk to acceptable
24 levels, and that the existing regulations in Part 50
25 and Part 70 don't adequately address the potential

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1 consequences of risks of a reprocessing facility, and
2 it's really this first sub-bullet that's probably the
3 most important, and that is based on analysis of what
4 a reprocessing facility might be like, the potential
5 source terms, in particular, fission products and
6 actinides that are part of that stream.

7 The number of scenarios, the complexity of
8 the operation are greater than fuel -- existing fuel
9 cycle facilities, and so, given these potential risks,
10 the requirements to license a reprocessing facility
11 solely on the integrated safety analysis approach in
12 Part 70 may not be adequate.

13 So, NRC staff position on -- proposed
14 staff position on a licensing of a fuel reprocessing
15 facility will be to use the ISA, but to incorporate
16 quantitative risk assessment methodologies in the
17 evaluation.

18 So, the approach that's been proposed in
19 the Gap summary is to use a hybrid ISA and some form
20 of a probabilistic risk assessment, to try to capture
21 the full complexity and source term of a potential
22 recycling facility, reprocessing facility, excuse me.

23 So, the notion would be to use the ISA to
24 identify and categorize that accident sequences and
25 then use a more quantitative approach to evaluate the

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1 high consequence or very high consequence event
2 sequences.

3 One of the -- obviously, the important and
4 big jobs in this approach would be to develop
5 appropriate guidance to support the application of a
6 quantitative risk assessment methodology.

7 In addition to that, the other standard
8 parts of an approach would be to apply safety
9 controls, what are called items relied on for safety,
10 or IROFS, to reduce the total risk and minimize risk
11 to receptors by applying as low as reasonably
12 achievable (ALARA) and as low as reasonably practical
13 (ALARP) concepts.

14 As we'll talk about in one of the later
15 gaps, we'd also identify the general design criteria
16 and controls needed to meet the ALARA and the ALARP
17 requirements.

18 So, this is the proposed chart that comes
19 from, originally from Part 70 guidance, that's been
20 expanded to incorporate this notion of a very high
21 consequence and very highly unlikely event.

22 So, the column and row have been added to
23 that table, and with the likelihoods given as
24 probabilities per year, or frequency per year of an
25 event or event sequence in the ISA.

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1 The previous stakeholder input that was
2 received on this gap comes from a number of sources.
3 The ACRS (Advisory Committed on Reactor Safeguards),
4 and Derek, we're hopeful that you can talk through
5 this some more in our discussion, that NUREG-1909 was
6 in favor of probabilistic assessment methodologies and
7 recommends formulating ALARA requirements that are --
8 establish design objectives.

9 The NEI paper September 2010 was in favor
10 of using the ISA with a quantitative assessment of
11 fission produce releases to the member of the public
12 for high consequence events, based on available data.

13 So, that's, I'm sure, one of the topics we're going
14 to talk about, when we talk about more quantitative
15 probabilistic risk assessment methodologies as what
16 data actually is available to achieve those analyses.

17 The paper that was published by GE in a
18 conference, I believe, also discussed the use of
19 probabilistic or risk assessment methodologies, and
20 again, referenced the need for reliable industry data
21 to conduct those assessments.

22 The second gap that I'm going to talk
23 about is whether or not and how operators will be
24 licensed under a proposed Part 7x.

25 The Atomic Energy Act of 1954, as amended,

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1 requires production facilities to have licensed
2 operators. Current regulations in Part 55 are not
3 applicable in whole to operators of reprocessing
4 facilities. Those are related to operators of power
5 reactors.

6 The NRC staff is developing a framework to
7 establish regulations for licensed operators and the
8 criteria for testing licensed operators.

9 So, the approach, again, is to make this
10 risk informed and performance based, and so, to apply
11 those risk informed performance based approaches, to
12 determine which personnel, including possibly senior
13 operators, need to be licensed and the requirements
14 for their licensing.

15 Personnel actions clearly are related to
16 the safety of preventing or mitigating the very high
17 consequence events, will be licensed by the NRC and we
18 will include requirements similar to those in 10 CFR
19 Part 55, to develop a systems approach for training,
20 testing, simulation facilities, re-qualification and
21 roles and responsibilities of licensed operators.

22 The stakeholder input largely comes from
23 the NEI White Paper and their recommendation is that
24 operators be certified by the facility licensee
25 according to NRC approved program, defining certified

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1 operators for, again, these event sequences which
2 would lead to potential fission product releases to
3 members of the public for the high consequence events.

4 There is no recommend in the NEI White
5 Paper for a licensing of senior operators.

6 Gap 9 speaks to the need for general
7 design criteria. If you know the terminology, the
8 general design criteria are these sort of over-
9 reaching criteria that are used to ensure safety and
10 safe operation.

11 So, NRC establishes these minimum
12 requirements for facilities all of the facilities and
13 applications of licensed radioactive materials, and
14 they're in place to assure that safety, the systems
15 structures importance that are relied on for safety
16 are reliable and will perform their intended safety
17 functions when needed.

18 I think one of the most important points
19 in this is the second bullet, is that, you know, the
20 general design criteria are in place because of
21 uncertainty, of errors, of unknown, and so, they're
22 there to try to capture additional factors that might
23 not be considered in the standard design.

24 There needs to be adequate defense and
25 depth, redundancy and diversity and that the balance

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1 of plant -- those parts of the plant that are not
2 considered system structures and importance directly
3 related to safety, but can have an impact on those
4 system structures and -- that are important to safety,
5 that those unanalyzed situations don't negatively
6 impact plant safety.

7 So, general design criteria, the issue
8 here is don't currently exist for reprocessing
9 facilities.

10 So, the NRC staff position, in that the
11 details of this are provided in a table in the gap
12 summary. There are 10 categories for general design
13 criteria and the staff have identified 78 potential
14 general design criteria within these 10 categories.

15 These include confinement, you know,
16 process safety, criticality safety, etcetera, that are
17 shown in this list.

18 NEI proposed, in their White Paper, 28
19 general design criteria, and those were largely drawn
20 from the Part 50 nuclear power plant regulations, with
21 some additions from other regulations.

22 They discuss the need to have thresholds
23 for the applicability of the general criteria. So,
24 those -- the need to have some risk informed on which
25 of those general design criteria would actually apply.

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1 The applicant would have to explain how
2 the general design criteria are used to achieve the
3 performance requirements, and that some general
4 criteria may not be necessary, based on the results of
5 the ISA.

6 Other stakeholder input that was received
7 was the need to minimize regulatory uncertainty on
8 general design criteria and establish the general
9 design criteria by regulation, not simply by guidance.

10 I think another very important gap that we
11 discussed is the one-step licensing and inspection and
12 testing acceptance criteria. This is Gap 10.

13 Currently, there are no regulations for
14 one-step licensing or combine license (COL) for a
15 reprocessing facility. 10 CFR Part 52, which is for
16 new reactors, doesn't apply to spent fuel reprocessing
17 facilities, and the requirements for approval of
18 applications for licensing under 10 CFR 7023 do not
19 address reprocessing facilities.

20 So, the general NRC position is, the
21 general licensing authority similar to that under Part
22 52 would be adopted, one-step licensing processing,
23 for reprocessing facilities, including an inspection
24 process, something that is ITAAC or ITAAC-like. I
25 don't want to make -- the NRC was careful to make sure

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1 that we were advocating something that was clearly
2 ITAAC.

3 This would be to confirm that the facility
4 meets the design, construction and licensing
5 requirements. The process could include the
6 opportunity for early site permitting, that could be
7 referenced in the license, and that there is the
8 potential that we have to reserve areas in the
9 regulation for technology specific requirements and
10 licensing for the different technologies, such as
11 aqueous or electro-chemical reprocessing.

12 Then NEI White Paper, and then industries
13 other comments on this particular gap, were that they
14 were generally in favor of one-step licensing, but
15 they always wanted to have the proposed 7x regulation
16 include flexibility for either one or two-step
17 licensing process.

18 The last of the gaps that I'm going to
19 speak to are on technical specifications, and the
20 Atomic Energy Act of 1954, as amended, requires
21 technical specifications for production facilities.
22 10 CFR Part 70 doesn't require tech specs. It uses
23 the IROF methodology, but the IROFS to address
24 technical specifications in Part 7x may be needed, in
25 order -- because of the higher potential risk of this

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1 kind of a facility.

2 So, the NRC staff position is to use tech
3 specs to define space safety limits and limiting
4 control settings, limiting conditions of operations
5 and surveillance requirements and design requirements,
6 for the IROFS that address these high consequence or
7 very high consequence accident sequences, and that
8 additional technical specifications may be needed to
9 ensure that safe operation with the bounds of that --
10 of the safety analysis, as well as other
11 administrative programmatic -- programmatic and
12 technical specifications.

13 The NEI White Paper recommended tech
14 specifications, again, for this category of events
15 they called high consequence events involving fission
16 product releases to an individual located outside of
17 the controlled area.

18 There are a number of questions that were
19 provided with these gaps, that are in the handout that
20 was provided, and I didn't go through those in detail.

21 I hope that some of those are part of the discussion
22 on these particular gaps, and that's all I have on the
23 presentation.

24 MR. CAMERON: Okay, thank you very much.

25 Thanks, John.

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1 What I'm going to suggest is that we go
2 through the discussion in a different order than the
3 gaps were presented, and basically, talk about
4 methodology, GDC and tech specs, because there is an
5 architecture there, relationship, and then when we're
6 done with that, we can talk about the one-step
7 licensing issue and finally, about operator licensing,
8 and of course, as John mentioned, there are questions
9 in the gap paper that the staff prepared, and we can
10 interject those at any time. Does that make sense to
11 everybody?

12 Okay, well, how about methodology, this
13 issue of the probabilistic risk assessment, the PRA,
14 versus the -- or in combination with the ISA?

15 I think John did a great job of laying out
16 what the staff position is, and what we've heard from
17 the stakeholders. Let's go to Rod, to lead off on
18 that.

19 MR. MURRAY: Yes, and I'll start with a
20 question for NRC. The terminology very high
21 consequence event is new to us, and I was wondering if
22 you could walk us through, what was the rationale for
23 -- a two-part question.

24 What was the rationale for defining a new
25 category of event, number one, and number two, how

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1 dependent is the termination of what events fall into
2 which ones of these categories on PRA, or
3 comprehensive PRA for the whole facility?

4 MR. CAMERON: And okay, we'll go to Alex.

5 So, two parts, Alex, where did the very high
6 consequence event concept come from, and how does that
7 relate to the methodology issue?

8 MR. MURRAY: Okay, very good. Well, the
9 staff started looking at what were the differences --
10 can you hear me all right?

11 The staff started evaluating the
12 differences between reprocessing facilities and other
13 fuel cycle facilities, and we took note of, from the
14 NEI White Paper, and also, the Advisory Committee
15 letters and the report NUREG-1909, and we noted that
16 there seemed to be all of these, how shall we say,
17 implicit or implied special events, sort of
18 categories, which were above and beyond what are
19 currently considered in Part 70.

20 In fact, the NEI White Paper actually
21 introduced this category, although it was unnamed, of
22 fission product releases to members of the public, and
23 the staff thought, "Okay, this seems to be introducing
24 a category that was sort of beyond high consequence
25 events," and we just used the term very high

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1 consequence events, realizing that that is a sub-set
2 of high consequence events.

3 And for that category, it was based upon
4 actual scientific safety, technical differences of the
5 materials and types of operations that were occurring,
6 or might occur, at reprocessing facilities, such as
7 handling fission products, such as handling reactor-
8 grade plutonium, such as handling large quantities of
9 actinide materials, potentially, multiple receptors
10 being involved, etcetera, etcetera.

11 And based upon the staff analysis, it
12 would seem that this would bring in potential
13 consequences which could be much greater than say,
14 some of the thresholds in Part 70, as they exist right
15 now.

16 Now, on the flip-side of that, the staff
17 also evaluated and discussed within itself, and
18 evaluated various documents on -- from industry, from
19 the Advisory Committees, from other parts of the NRC,
20 from the general literature, input from members of the
21 public, and concluded that if you do have a category
22 of events which, if you will, have a somewhat higher
23 consequence than high consequence events, this
24 category, this sub-set that we're calling very high
25 consequence events, for want of a better name, that

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1 commensurately, it should have, if you will, more
2 rigorous analysis to demonstrate adequate assurances
3 of safety.

4 This actually comes directly from some of
5 the correspondence from the Advisory Committee on
6 reactor safeguards, and so, based on that, we
7 concluded it would be necessary to have more rigorous
8 analyses for this -- for these potentially very high
9 consequence events, and that would mean quantitative
10 risk assessment methodologies, such as PRA, and that's
11 how we got there.

12 MR. CAMERON: Okay, great.

13 MR. MURRAY: Thank you.

14 MR. CAMERON: Let's go back to Rod.

15 MR. McCULLUM: Yes, just a quick
16 clarifier. So, the regulation would envision whenever
17 there is a potential for a fission product release to
18 the public, or very high consequence event, and that
19 definition is useful, that a PRA is required in that
20 event?

21 MR. CAMERON: Alex, you used the term more
22 rigorous analysis, and I guess the point is, what does
23 that mean?

24 MR. MURRAY: In general, a more rigorous
25 safety analysis does mean a probabilistic risk

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1 assessment.

2 At this time, staff is still evaluating,
3 is it solely PRA? Are there other options?

4 We do have a Commission policy statement,
5 which says that we should use PRA methodology to the
6 greatest extent, practical in all regulatory matters,
7 okay.

8 So, we're basically following that
9 direction of the Commission, and also, from the
10 Advisory Committee on reactor safeguards, most
11 recently, in the February 2011 letter to the
12 Commission.

13 MR. McCULLUM: Yes, I think you may want
14 to --

15 MR. MURRAY: But we're still developing
16 what that really means, do you understand that, and we
17 are seeking guidance from members of the panel and
18 members of the audience here, if they have any
19 elaboration on what that means.

20 MR. McCULLUM: That's useful. I think
21 we'll want to explore that PRA versus more rigorous
22 safety analysis topic, but I see we have other tents
23 up, so, we'll hold onto that.

24 MR. CAMERON: Yes, and let's make sure
25 that we do have a discussion on this, but let me check

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1 in with Mary and then Tom, and see what else we should
2 put on the table. Mary?

3 MS. OLSEN: I like what I heard Alex say.

4 It makes sense to me, but I get really nervous when
5 we start talking about risk informing everything,
6 without having any prescriptive standards that are
7 set, and somebody has to show that that part is going
8 to get met.

9 I mean, if it's just an envelope that you
10 get to keep pushing around and pushing around and
11 pushing around, and then the public has no access,
12 because these things are "proprietary", and so, then,
13 there has to be all these big agreements signed, and
14 very expensive experts hired.

15 And so, I'm just going to put in a pitch
16 for something Dr. John Goffman used to talk about, and
17 that they actually do in Canada, which is, you know,
18 if you're going to do this level of regulatory
19 interactions, that you actually fund the interveners,
20 to be able to afford to participate, because
21 otherwise, it's completely a lock-out.

22 And I think our current administration has
23 an emphasis on transparency, and I hope this agency
24 will continue to have that commitment, as well.

25 MR. CAMERON: Okay, thanks, Mary. I'm

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1 going to put the intervener funding issue in the
2 parking lot here, and I would just ask the rest of the
3 panel, as you heard Mary's concern about prescriptive
4 requirements, okay, where are they, and as we go along
5 in our discussion and perhaps, Alex, you want to say
6 something about that, right now, let's make sure we
7 address that. Alex?

8 MR. MURRAY: We do, the NRC staff does
9 believe that there should be some prescriptive
10 requirements. We're not entirely sure of the specific
11 details right now.

12 Some of these prescriptive requirements we
13 will call general design criteria, and these would be
14 conditions, or situations that the licensee must
15 address, and there is a table in the summary which
16 gives some proposed areas for those general design
17 criteria.

18 Those areas might actually become general
19 design criteria, in and of themselves. We use the
20 term GDC, for general design criteria. Those are
21 based upon what currently exists in the regulations
22 for handling radiated materials, such as spent nuclear
23 fuel.

24 MR. CAMERON: Okay. So, the prescriptive
25 requirements are going to be the general design

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1 criteria, is what I'm hearing, and you Yawar, do you
2 want so say something more on this, this prescriptive
3 idea?

4 MR. FARAZ: Certainly. In addition to the
5 general design criteria, there will be technical
6 specifications and the staff believes that in addition
7 to the tech specs that are based on the safety
8 analysis, there might be additional tech specs that
9 may not have a direct -- show a direct nexus to risk.

10 Never the less, there -- we would consider
11 them important from a safety standpoint, that they
12 would be included in the technical specifications,
13 which essentially, you know, establish the overall
14 safety envelope, and you might consider it that way,
15 for a reprocessing facility, and as a reminder, the
16 existing fuel cycle facilities are not required to
17 have technical specifications. Our reactors are.

18 MR. CAMERON: Okay, and we will be -- I
19 think that aides everybody's understanding on this,
20 and we will be getting to the discussion of GDC and
21 tech specs.

22 Let's hear from Tom and then perhaps,
23 we're going to be going back to the issue that we
24 started with. Tom, then we'll go to John Greeves.

25 MR. CLEMENTS: Thank you. On the slide on

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1 the screen now for Gap 5, I don't know if will be Alex
2 to respond, or someone from the NRC.

3 If you could explain why you've put this
4 ALARA/ALARP with a slash, and where in the
5 regulations. We didn't get an explanation yesterday,
6 a good explanation about as low as reasonably
7 achievable.

8 Where is the as low as reasonably
9 practical coming from? There is -- although I may
10 have problems above these, I think there is a big gap
11 between those two, and why is it kind of an and/or on
12 -- in the presentation, and what is the definition of
13 as low as reasonably practical, in this sense of this
14 gap?

15 MR. CAMERON: Okay, who wants to address
16 that, and I think it's clear, what Tom's question is.
17 Yawar?

18 MR. FARAZ: Yes, the reason we added ALARP
19 to the ALARA concept, generally, when you think of
20 ALARA, you think of radiation dose and to reduce the
21 radiation dose as much as possible, primarily for
22 workers.

23 There are -- existing licensees are
24 required to implement ALARA per 10 CFR Part 20,
25 although here in this -- on the Gap 5, you are talking

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1 about the risk of accidents, and we're discussing, you
2 know.

3 So, the same kind of philosophy we expect
4 to apply to minimizing risks of accidents. So, you
5 would minimize the risk, as low as possible. We
6 didn't intend to use, you know, existing terminology
7 from regulations and the same kind of philosophy.

8 So, we just wanted to kind of explain that
9 what we mean is minimize as much as possible, you
10 know, and you might even include, based on some cost
11 benefit type evaluation, but that was the purpose.

12 MR. CAMERON: And is there -- Tom, is part
13 of your question, what is this concept of as low as
14 reasonably practical?

15 MR. CLEMENTS: Well, now, another term has
16 been introduced, as low as possible. So, I'm a little
17 confused, as to what the point it.

18 MR. FARAZ: The term ALARP is used in the
19 UK, very widely. It's as low as reasonably
20 practicable, and it's not so much the terms, the
21 application of the terms, it's the philosophy that we
22 want to explain, that that philosophy would be applied
23 to potential accidents in minimizing the risk of those
24 potential accidents.

25 MR. CAMERON: So, this term ALARP, as you

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1 called it, is from -- it's not from the United States
2 regulatory philosophy. It's something that's used in
3 the UK, and I guess one of the questions is, is what
4 is the difference, and maybe you hit that.

5 But what is the difference between ALARA,
6 our concept of ALARA, and this as low as reasonably
7 practicable, and I know Alex is --

8 MR. CLEMENTS: Well, I think you mentioned
9 cost benefit. I'm not sure if there is anywhere in
10 the regs, that cost benefit analysis on a licensing
11 proceeding is part of the licensing.

12 MR. CAMERON: Okay, let's go to Dennis.
13 Dennis Damon.

14 DR. DAMON: It's not in the regulations.
15 It's in the Atomic Energy Act. It's in the statute,
16 okay.

17 The words are -- well, actually, it is in
18 the regulation, because it was imported into the
19 regulation. It's in 70.22, okay. The words are, "The
20 Commission is authorized to set standards, to minimize
21 danger to life and property," okay, that's the
22 concept. It's the same thing as ALARP, only what --
23 the distinction we're trying to make here is ALARA is
24 a terminology from Part 20, which has to do with
25 planned exposures and effluence, that kind of thing.

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1 ALARP is a broader concept. It involves
2 minimizing risk from accidents, as well as routine
3 releases.

4 MR. CAMERON: Okay, thanks, Dennis. Alex,
5 do you want to add anything onto that?

6 MR. MURRAY: If I could, please, just a
7 very quick comment, and we can let someone respond.

8 The concept, in all of the NRC
9 regulations, and it would carry over into any proposed
10 regulation on reprocessing facilities, is that not
11 only do licensees have to meet the requirements, if
12 you will, the limits, if you will, that are in
13 regulations, but they also have to look and go beyond
14 those limits, such as to use the term from Atomic
15 Energy Act, minimize risks to the lowest extent
16 practical.

17 Okay, we use terms which are in the Atomic
18 Energy Act, and carried over into our regulations, as
19 low as reasonably achievable. As Yawar and Dennis
20 pointed out, those usually are more in the context of
21 planned or routine exposures. The term ALARP is a
22 term that we're considering from the United Kingdom's
23 regulatory structure, which brings in more of the
24 context of unplanned or accidental conditions, i.e.,
25 don't just meet the limit, go beyond it, and by

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1 beyond, I mean, below the limit, as much as you
2 reasonably can.

3 MR. CAMERON: so, the same philosophy?

4 MR. MURRAY: Yes.

5 MR. CAMERON: Okay, just applied to
6 different things, and you're going to --

7 MR. MURRAY: Yes.

8 MR. CAMERON: We're going to go to the
9 presenter.

10 MR. MURRAY: May I just add one last
11 thing? As part of the discussion this morning, we
12 appreciate any input that the members of the panel,
13 the members of the audience might have, as to how we
14 would define ALARA and ALARP, in the context of
15 potential regulations for reprocessing facilities.

16 MR. CAMERON: Okay, and let's hear from
17 John, and then let's see what the panel -- we'll go to
18 Rod, and see what the panel has to say about that.
19 John?

20 MR. STAMATAKOS: Yes, Tom, the analogous -
21 - I think an analogous approach is the SAMA approach,
22 that's used in reactors. This is severe action
23 mitigation analysis. That's a cost -- that includes a
24 cost benefit, and has a cost benefit component to it,
25 as well.

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1 So, that philosophy, I think, is embedded
2 here.

3 MR. CAMERON: Okay, thanks, John. Rod?

4 MR. McCULLUM: John Greeves has had his
5 tent up for a while. I think he's got a lot of
6 expertise on this, and I'd like to hear what he has to
7 say first, and then I'll comment.

8 MR. CAMERON: Well, I just want to make
9 sure that we close out the ALARA/ALARP.

10 MR. McCULLUM: Yes.

11 MR. CAMERON: And I thought his point was
12 on something.

13 MR. McCULLUM: Yes, briefly on this --

14 MR. GREEVES: Yes, a problem we didn't
15 close out earlier, yes, you're correct, but I'd say
16 something about ALARP, too.

17 MR. CAMERON: Okay, do we -- well, if you
18 have something on the --

19 MR. McCULLUM: I'll say very quickly that
20 I am concerned that reprocessing would be the only
21 type of facility in the United States where we would
22 define this term.

23 I think we have ways of assuring, and this
24 goes back to the ISA, maybe this will link to John's
25 discussion. You know, we certainly want to assure

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1 that items relied on for safety will function. We
2 certain want a high level of control there, and we
3 certainly want to make sure that's reflected in the
4 regulations.

5 But I think it only becomes confusing if
6 this new definition of safety comes into play, that
7 only exists in this type of facility, not lower hazard
8 facility or not high hazard.

9 Let's use the terminology we already have,
10 for assuring that systems function and -- as opposed
11 to introducing a new --

12 MR. CAMERON: So, do you think that -- you
13 think that what we have now can be used to achieve the
14 same objective that the staff is concerned about, and
15 that the use of a new term, that doesn't have any rich
16 history, I'll use John's phrase from yesterday, rich
17 history here may be problematic and counter-
18 productive?

19 MR. McCULLUM: Exactly, because we -- the
20 history of assuring that systems that are important to
21 safety work, we have that, and if we stick with that
22 terminology, all the folks that design these things
23 and operate these things, they know exactly what to
24 expect.

25 MR. CAMERON: Okay, and I think you know,

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1 the reason for Tom's question and confusion is because
2 we're -- where did this come from?

3 Let's go to John and then to Sven. John?

4 MR. GREEVES: Yes, just to finish on the
5 second item, I really want to go back to the first
6 item, then.

7 ALARA has been addressed by the Part 70
8 people for a long time. I would ask you, don't
9 introduce new terminology. You're going to get these
10 kinds of questions from people, what is a lab,
11 etcetera? This kind of discussion is going to happen.

12 The Commission has done ALARA for a long
13 time, and Part 70 and Part 20 and Part 40 and Part 30.

14 It's not new. There are ways to do that.

15 What I raise my tent on was the discussion
16 that Alex went through, on the ISA/PRA piece, and this
17 is very complicated and I frankly, think there is
18 going to be more meetings on this, rightfully so,
19 rightfully so.

20 Surprised to see you introduce a new
21 concept, very high consequence events. Two points.

22 I'm sympathetic with what Mary Olsen said
23 earlier. You introduce this new concept, another
24 layer in two dimensions, and it is going to be very
25 difficult for the stakeholders to follow this. It's a

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1 point.

2 We've been working on ISA's and edging
3 toward PRA for a long time. The staff has done these
4 Part 70 reviews. I don't see the need for a new
5 category. It's just, how do you implement the
6 approach you've used in the past?

7 The NEI White Paper acknowledged that for
8 events that could be risk offsite, that you should
9 move towards quantitative approach, in those cases.

10 I don't think it requires defining another
11 level, and it's going to -- if you do that, it's going
12 to induce a level of complexity that will make it less
13 transparent, and I think there is a lot more we're
14 going to have to talk about this process. But I'm
15 surprised and concerned about additional prescriptive
16 layers in this process.

17 The Commission has urged the staff to use
18 risk informed performance based approaches, and not to
19 add prescriptiveness to this process.

20 So, I think it's going to take a lot of
21 dialog, to get there, but the NEI White Paper
22 acknowledged, in those cases, where you do bump up
23 against the current standards of high consequence
24 event, that using quantitative techniques is something
25 that should be pursued. So, I'll stop.

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1 MR. CAMERON: So, John, your concern with
2 this is similar to the concern that Rod expressed,
3 with ALARP, that the existing framework can
4 accomplish, can meet the concern that the staff is
5 trying to address, but the introduction of a new term
6 can only create confusion and as you noted, less
7 transparency. Is that it?

8 MR. GREEVES: That's certainly part, and I
9 think Alex understands what I'm saying, that the terms
10 that you have, the approach that you have, can achieve
11 the same ends, and it's just a question of how do you
12 introduce the PRA concepts, when needed?

13 MR. CAMERON: And before we go to Alex and
14 Yawar, let's hear from some -- from Sven and Mary and
15 then, have the NRC staff jump in, and then go to Rod.
16 Sven?

17 MR. BADER: I'm a safety analyst at heart,
18 and what perplexes me here is, if we're going to stick
19 with the term IROFS, and then go with this ALARA/ALARP
20 and PRA approaches, I'm not sure how you're going to
21 come up with IROFS, other than designating everything
22 in a facility IROFS.

23 The majority of the facilities are
24 designed with the ALARA concepts. So, you know, if
25 we're going to have to apply these to facilitating

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1 some of these events, we're talking about significant
2 number of IROFS, and I think one of the complaints
3 I've heard in the past about some of the Part 70
4 facilities is they have too many IROFS, that makes
5 inspections hard to do.

6 So, you know, I just want you to
7 understand that from a safety analyst standpoint, if I
8 have to apply the PRA, which goes through a rigorous
9 assessment of facility crediting all portions of that
10 facility, you know, I see Alex is flapping his hand,
11 so, clearly, he wants to address this. So, I'll stop
12 there.

13 MR. CAMERON: Yes, it's a nervous habit.
14 For those of us who are not familiar with this, can
15 you just explain what IROFS are and what that acronym
16 stands for?

17 MR. BADER: Items relied on for safety,
18 and so, those are essentially your most important
19 items that you're protecting -- that are protecting
20 you against the hazards in the facility.

21 You know, and with this concept of very
22 high consequences, I wonder if our IROFS now become
23 doubly important in those cases, versus the IROFS that
24 are necessary for worker protection.

25 MR. CAMERON: And so, that your point is,

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1 is that with this ALARP concept, that IROFS -- that
2 the concept of IROFS is going to lose its viability,
3 because everything is going to be an IROF, okay, and I
4 want to get Mary on, before we go to the NRC staff,
5 and then we have Rod and Derek. Mary?

6 MS. OLSEN: Yes, I don't mind agreeing
7 with anybody at this table, but I just want to clarify
8 that these very high consequence events don't
9 necessarily translate into prescription, nor do they
10 necessarily make probabilistic risk assessment more --
11 you know, less transparent.

12 So, I just want to clarify that my own
13 views weren't be reflected in a previous comment about
14 possible agreement, because quite frankly, I think
15 that you should have a prescription about how high
16 your sea wall is, if you're in a high earthquake area,
17 and we have seen the consequences of not having, you
18 know, very big IROF met, and so, yes, I really think
19 there needs to be prescriptive things.

20 On the other hand, I'm really happy to
21 hear that maybe somebody is recognizing that a really
22 high consequence events needs to be a little bit more
23 weighted than that ten to the minus, however many
24 zeros you put on it, because you think you're just
25 never going to see if in your lifetime. I mean,

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1 that's that old joke about, what was his name, got hit
2 by a meteor, when Three Mile Island happened? You
3 know, that was the big probabilistic -- first
4 probabilistic risk assessment guy. I'm forgetting his
5 name. But you know, that was the joke, he got hit by
6 a meteor.

7 So, I think both things are tremendously
8 important, that we weight certain factors in a risk
9 assessment differently, and that there are some
10 prescriptive levels that just -- you look at the
11 situation and you go, "Oh my God, how could they put
12 the diesel generators so low down on that site?"

13 MR. CAMERON: Okay, and Mary is talking
14 again, about prescriptive, and I think as we go
15 through our discussion of general design criteria and
16 tech specs, I mean, you hear Mary's concern, and I
17 think that in your knowledge around the table, you can
18 address those concerns, as we have the discussion on
19 that.

20 Now, let's go to Alex and then, you don't
21 want to -- let's go to Alex, and then let's go to Rod
22 and Derek. Alex?

23 MR. MURRAY: Yes, I heard several times,
24 Part 70 was mentioned. I just first want to clarify
25 that reprocessing facilities are not regulated under

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1 Part 70. They are currently regulated under Part 50,
2 okay.

3 So, they are different from the fuel cycle
4 facilities in Part 70. In some of the slides here, in
5 some of the discussions in the summary, some of these
6 differences are pointed out. I mentioned some of them
7 previously. I'll just repeat a couple of them, right
8 now.

9 You do have the presence of fission
10 products, okay. These give high gamma fields. They
11 are a potential hazard for both workers and members of
12 the public.

13 You do have the presence of reactor-grade
14 plutonium, okay, which presents more inhalation and
15 direct dose hazards, okay. Fundamentally different,
16 okay.

17 You also have the presence, or potential
18 presence of greater quantities and types of other
19 actinides, americium, curium, neptunium, okay. All of
20 these have much higher dose conversion factors and
21 potential health consequences, which translate, of
22 course, ultimately, we use the term hazards in the
23 NRC, and these hazards are different above and beyond
24 what currently exists at Part 70 facilities, okay.

25 So, please understand, these are

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1 fundamental, technical safety differences. In the
2 staff's discussions and analyses, based on what we
3 have reviewed from previous meetings and discussions,
4 on NRC documents, on industry documents and multiple
5 sources, other regulators overseas, the Department of
6 Energy, we've done an exhaustive look and have
7 listened to a lot of people. These differences are
8 real and any potential or proposed new regulation for
9 reprocessing facilities needs to accommodate and
10 address those fundamental hazard differences.

11 Okay, now, the staff also recognizes that
12 the Part 70 approach, where we're bringing in risk
13 informed performance based has some merit, okay, and
14 that's why if you look at that matrix, that was
15 presented by John, about 15 minutes ago, and it's in
16 the summary handout that Tom is looking at right now,
17 okay, it builds upon the Part 70 concept and says,
18 "Hey, let's risk inform this extra category, in order
19 to address these different and potentially greater
20 hazards from reprocessing," okay, and make sure that
21 the regulatory approach ultimately, for a reprocessing
22 facility, will come about and bring adequate
23 assurances of safety.

24 Yes, if you have something that is
25 potentially more hazardous, we need to look at it more

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1 thoroughly and address the hazards.

2 Now, the questions which the staff has is,
3 how do you do that? Okay, we have come up with one
4 approach, based on previous discussions, that builds
5 upon the NEI approach. It builds on the Department of
6 Energy approaches. We're open to more input.

7 So, please discuss it with that frame in
8 mind. Thank you very much.

9 MR. CAMERON: Okay, and Rod, do you mind
10 if I go to Derek first, because I think there may be
11 something is says that --

12 MR. McCULLUM: Yes, just be warned that
13 the more these people talk, the more things I think of
14 to say.

15 MR. CAMERON: But you know, the one thing
16 that that would -- I think the NRC staff should
17 address, you heard a concern from Rod, you heard a
18 concern from John, about one -- one, about ALARP and
19 two, about the very high consequence event.

20 This concern that introducing the new
21 concept doesn't add to the safety, but could add to
22 the complexity and confusion, and certainly, that's
23 something the NRC would have to take into account, in
24 terms of, you know, its regulatory philosophy on this.

25 You may want to respond to that, that

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1 concern, those concerns, at some point. Derek?

2 MR. WIDMAYER: Yes, I also agree with John
3 and others, about introducing the concept of ALARP.

4 MR. GREEVES: Which John do you agree
5 with?

6 MR. WIDMAYER: All of the John's. This
7 John, okay, as far as introducing the new topic, and
8 that's all I have to say on that.

9 The rest of my comments would tend to, I
10 think, change the course of the conversation. So, I
11 don't know if Rod actually wants to go ahead first,
12 and then --

13 MR. CAMERON: Okay, let's -- thank you.
14 Thank you, Derek. Let's go to Rod, and then we'll
15 come back.

16 MR. McCULLUM: Yes, I think this a great
17 discussion and I appreciate the fact that staff is
18 still open to input, and I understand that in the NEI
19 White Paper, we talked about the role of ISA and there
20 may be some -- I think we see them as fairly limited
21 instances, where PRA might be useful.

22 I think there is a couple of concepts that
23 need to be clarified here. I think a couple of areas
24 where it's confused.

25 There seems to be, and I'm kind of

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1 thinking quantitatively here, seeing equations in my
2 head, there seems to be an equal sign being put
3 between level of rigor and quantitateness and level
4 of control.

5 I don't think that equation works, and
6 also, you know, there seems to be an idea that the
7 level of hazard should drive the level of
8 quantitateness, or the need for a PRA, and in
9 reality, it is the function of the system, the way the
10 system works, that drives the utility of a PRA,
11 whether you can even do one.

12 I think, you know, a PRA is -- or an ISA
13 is sufficiently rigorous, if it identifies the items
14 relied on for safety, and the designers can design
15 those items, appropriately, to mitigate the risk
16 that's being dealt with.

17 Mary brought up an excellent example with
18 the sea wall. Your ISA would identify the sea wall as
19 an IROF, if you were in an area where a tsunami was
20 credible. You would bring in a level of
21 quantitateness, because you'd have historical data
22 that would tell you what the probability of what sort
23 of a tsunami was, and I would admit, in the recent
24 event in Fukushima, they simply missed that one by a
25 lot, and that's not good.

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1 But that doesn't drive the need for a PRA,
2 number one, and also, a PRA for a sea wall is not
3 possible. Remember what PRA ties to. It comes from a
4 reactor world where you have a number of inter-related
5 systems that prevent a core damage accident.

6 What PRA lets you do is figure out which
7 ones of those systems are important, or how important,
8 in mitigating or preventing the possibility of a core
9 damage accident.

10 So, you know, this pump has to function.
11 This valve has to open. This system has to have power
12 from this system, and that system can't get in the way
13 of this system, you know. That is why a PRA becomes
14 necessary.

15 In a reprocessing facility, you don't have
16 this chain of inter-related systems, that stand
17 between you and a core damage accident. You don't
18 have that level of complexity. You, in fact, can
19 better achieve safety, with an integrated safety
20 analysis. You identify the IROFS. It can be a fairly
21 straight forward process, as is the example of the sea
22 wall.

23 And once you do that, it becomes a
24 question of designing the IROFS to meet that intended
25 function, so that you do assure safety.

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1 A more quantitative analysis won't
2 necessarily get you there, and so, really, it has to
3 be driven by how the system functions, not by the
4 level of hazard, and just being more quantitative. If
5 you throw a quantitative analysis, in some instances,
6 a PRA won't even be meaningful, but it makes the
7 safety analysis harder for everybody to understand,
8 and you get a number that is not meaningful.

9 You don't have the data. You don't have
10 the system interactions that are being described. You
11 just have something that you would have had anyway,
12 had you just designed the IROF to the appropriate
13 standards, to assure its function in the appropriate
14 events.

15 So, I'll summarize, I know Chip wants me
16 to summarize here, it's let's think about what is
17 needed, given the way the system works, to assure
18 safety in the most straight line path possible, as
19 opposed to adding initial -- additional concepts and
20 jumping too far.

21 We have a greater need to assure safety,
22 so, we have to be more complex, and introduce new
23 terms and be more quantitative.

24 That's not the straight line path to
25 safety, that we really need to best protect the public

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1 here.

2 MR. CAMERON: Okay, thanks, Rod. I think
3 that is a very useful caution, and I would, you know,
4 look to all of you around the table, about whether it
5 is a useful caution.

6 But the caution is, is that increased
7 quantitative analysis, even if you could do it, but
8 that doesn't necessarily equate to more safety.

9 MR. McCULLUM: Well said.

10 MR. CAMERON: Okay. Before we go to
11 Dennis and the rest of the cards, let's hear from
12 Susan.

13 MR. CORBETT: I just want to say briefly,
14 as speaking for the public, I welcome this break-out,
15 these additional break-outs. I think the public wants
16 to know the details of a very highly unlikely high
17 consequence event, and that according to what it says
18 that, you know, the presence and processing of large
19 quantities of fission products and transuranic isotopes
20 has the potential to greatly increase consequences far
21 above the 10 CFR Part 70 high consequence thresholds.

22 I think the public wants to see the worse
23 case scenario, and we want to be able to ask questions
24 about that, and I welcome the additional break-outs,
25 just as a member of the public.

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1 MR. CAMERON: And that's something, I
2 think that all of you should think about, too, in
3 terms of Susan's statement about the public would like
4 to see this. Think about how -- what you would say to
5 that, in terms of assurance to the public.

6 Let's go to Dennis and then, to Yawar and
7 then, let's come back and see where Derek was going to
8 take us, and also, talk to John.

9 DR. DAMON: I thought I'd clarify
10 something for those, unlike the members of the staff
11 here that have been in fuel cycle for a long time. We
12 know what the regulations say, and why you go -- you
13 really do need a very high consequence event, and it's
14 very risk informed, okay.

15 The highest consequence threshold for
16 radiation exposure of a member of the public, in the
17 Part 70 rule, which doesn't apply, but we're thinking
18 of have a 70x that does, is 25 rem, exceeding 25 rem.

19 That's a pretty modest dose.

20 There is at least two break-points in
21 health effects above that, that are much more serious.

22 One is 100 rads, where you get into acute radiation
23 syndrome, which is a very severe health effect.

24 So, 100 to 350 rads, you're talking about
25 very sick people, you know, hair falling out, you

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1 know, nausea, fever, all that kind of stuff.

2 Then you go above 350 rads, you're talking
3 about life threatening, okay. In the chemical
4 consequence criteria that are in the current rule, we
5 follow the EPA's acute exposure guideline levels that
6 define health effects in terms of qualitative levels,
7 and they go for workers, all the way to life
8 threatening.

9 We don't have an analogous thing for a
10 member of the public in the current rule. We have two
11 other break points above 25 rem, that give very
12 radically different health effects, and consequently,
13 the staff believes that for those events, we want
14 greater assurance that the protective measures are
15 adequate, and I might address what Rod was talking
16 about, the difference between reactors and
17 reprocessing and the complex control systems and PRA.

18 It's not the complex control systems that
19 I, personally, am concerned about. It's external
20 events, earthquakes, tsunamis, flooding, what else is
21 there? It's that kind of thing that we want a greater
22 quantitative assurance, that the plant has been
23 designed to resist the most severe events that can
24 occur, and that's the mistake the Japanese made.

25 They quantified the magnitude of the

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1 earthquake and tsunami, that they thought could occur
2 on the thrust fault, and I don't know how they did I,
3 because I was able, by a cursory review of megathrust
4 events, that they go to magnitude 9, and you shouldn't
5 have assumed that they could only go to whatever they
6 assumed. It was like an 8.2 or something.

7 You know, a thrust fault of that size can
8 produce a 9. They blew it, okay, and consequently,
9 they didn't make a big enough sea wall, okay. That is
10 what we want. We want you guys to do a better job of
11 quantifying things, and that includes -- it's not the
12 likelihood, and what's the probability of failure of
13 this control or that control. It's the consequences.

14 We want to know what the doses are, the
15 source terms and the releases of radioactive material,
16 just as is said in the NEI White Paper.

17 We got these fission products and
18 actinides that can theoretically produce these larger
19 doses. We want to know will they, in fact, produce
20 these larger doses and what are you going to do, to
21 provide greater assurance than just preventing high
22 consequence events, because the current rule was
23 designed for the facilities that existed at the time
24 the rule was promulgated, which was the year 2000, and
25 we didn't have a MOX facility, and we didn't envision

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1 reprocessing.

2 So, the rule didn't really include
3 consequence categories appropriate for that kind of
4 facility.

5 MR. CAMERON: Let me just get Rod.

6 MR. McCULLUM: Yes, I could -- I'd
7 actually like to agree with what -- one key thing that
8 Dennis said, which is that we should quantify the
9 probabilities of external events.

10 I mean, once your ISA has identified the
11 sea wall as an IROF, then you need to figure out what
12 the probability of what tsunami hitting that sea wall
13 is, and that's exactly the point.

14 That doesn't mean you want to do -- or
15 even, it's useful to try to do a PRA to identify the
16 sea wall as being needed.

17 So, yes, absolutely, we should be
18 identifying the probabilities of tornadoes,
19 earthquakes, floods, and we should design against very
20 low probability events, when the protection of public
21 health and safety is involved.

22 Now, as far as defining it as a very high
23 consequence event, Dennis talked about, you know, some
24 pretty interesting, he called them break points.

25 You know, we're going to start at a much

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1 lower level, or in other words, a much higher level of
2 public health and safety protection. You're not going
3 to wait until you're getting to those break points.

4 You're going to identify IROFS, in order
5 to prevent events that could have -- could trigger
6 EPA's protective action guidelines, which are much
7 lower, you know, you're talking one rem. I mean, so,
8 you're going to design against any event that could
9 have a public consequence well below the thresholds
10 that we're talking about for these very high
11 consequence events, and again, adding the extra layer
12 of complexity, beyond quantifying what events you need
13 to be worried about, I'm still going to design a sea
14 wall, just as well, I mean, because at the lower
15 threshold, the more protective threshold, I think is
16 the best way to say it.

17 MR. CAMERON: Okay, this is a good
18 discussion. Let's go to Derek and John, Kevin, Tom,
19 and then come back to Yawar and Sven, and let's see,
20 let's maybe finish this discussion and go to GDC, with
21 those tents, or the progeny of those tents, if you
22 know what I mean. Derek?

23 MR. WIDMAYER: Okay, the introduction to
24 the session began with John, and he -- that John over
25 there, and he talked about an ACNW&M (Advisory

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1 Committee on Nuclear Waste and Materials) report, and
2 I happen to have that with me, if anybody wants to get
3 the citations and everything.

4 This actually -- your slide said it was
5 from the ACRS. It's actually not. It's from the
6 ACNW&M and the ACNW&M has been absorbed into the
7 ACRS.

8 First of all, I want to caveat that I'm
9 here representing the staff of the ACRS. I don't
10 represent the Committee. Even if a Committee member
11 was here, he wouldn't be representing the Committee.

12 I did do some homework, as far as the
13 session was concerned, and the -- you know, the best
14 reference to use at this point in time is the ACRS's
15 most recent letter, which was February 2011, as far as
16 what their feelings are on ISA versus PRA.

17 That having been said, there are some
18 members of the Committee that, you know, feel like PRA
19 is what should be done, you know, for -- a full PRA
20 should be done for reactors.

21 Now, you can get into a long conversation
22 about what that means, but there are -- you know, the
23 members of the Committee are a little less comfortable
24 with the notion of an ISA, although they're beginning
25 to understand it a little bit better.

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1 With those caveats, you know, I thought
2 that the hybrid approach was something that you could
3 potentially explore and bring to the Committee. They
4 certainly would want some step in the process to look
5 like a PRA, because what they're interested in is, you
6 know, prioritizing the risks for inspection and not
7 having the 10,300 whatever IROFS that you had at the
8 MOX facility, without also continuing the process and
9 figuring out which ones are more risk significant.

10 So, you know, I don't think they object to
11 starting with an ISA and moving to a PRA. I think the
12 best probably -- you know, that kind of hybrid
13 approach would probably work.

14 One suggestion that I did want to bring
15 forward was, I didn't -- an approach where you
16 eliminate the low risk stuff first, I think is also a
17 useful exercise to try to get to, you know, to the
18 extent that an ISA does add -- I'm not an ISA or a PRA
19 person, but if you did some sort of process where you
20 said, "Okay, we've got a whole bunch of these things
21 that we can eliminate first, because they're
22 insignificant to the risk," and then go to the more
23 quantitative analysis, where you prioritize things, I
24 think is, you know, kind of like where they might be
25 headed, as far as bringing in a hybrid approach to

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1 them.

2 MR. McCULLUM: I know I'm not an attorney,
3 I just want to say amen.

4 MR. CAMERON: Okay, do you want to also
5 say amen? No? Let me get you on here, and then we're
6 going to go to John Greeves and Kevin and Tom, and
7 then come back to Yawar and Sven. John Stamatakos.

8 MR. STAMATAKOS: Yes, Rod, just as a
9 response, as to what you talked about, you know, with
10 the sea wall, or the -- you know, designing against an
11 extreme event.

12 One of the disadvantages of that approach,
13 without looking at the entire event sequence, I mean,
14 you may have a low sea wall, but there may be other
15 parts of that event sequence that, you know, you have
16 to have gas diesels that are below grade.

17 You have to have -- there is a sequence of
18 events that led to that accident, not just the fact
19 that the sea wall was too low.

20 But the other point I want to make, in
21 adding a quantified approach, for those large
22 consequence events is that they allow much better
23 incorporation of their uncertainty.

24 So, you might say that that tsunami was a
25 one in 10,000 year tsunami, or one in 100,000 year

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1 tsunami, but there is a huge uncertainty to that
2 number.

3 And so, you know, by incorporating some
4 better risk analysis into that, you're also allowing
5 to incorporate what that uncertainty of that
6 probability is. The same thing is true, you know,
7 with earthquake ground motions.

8 You know, you might have the one in 2,500
9 year ground motion that might, for this area, might be
10 -- have a PGA of .2 or .3g, but there is a huge
11 uncertainty on that value, and you want to be able to
12 incorporate that uncertainty into the analysis, as
13 well as what you think the mean or the median value
14 is.

15 MR. McCULLUM: Yes, I just want to agree
16 with that, and indicate that I think you can do that
17 with ISA, in most cases, and my experts have their
18 tents up, so, I'll let them go.

19 MR. CAMERON: So, I guess that's the
20 question. Let's go to John and then over to Kevin and
21 then back over to Tom.

22 MR. GREEVES: Alex, I'm listening very
23 carefully to what you're saying here this morning, and
24 you're stressing look more thoroughly, and we
25 recognize that, when we put the NEI White Paper

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1 together, and stressed that there are times when you
2 do need to look more thoroughly.

3 So, the system that we recommended, you
4 can, in fact, and should do that. That's the
5 intention, is to look more thoroughly.

6 You make a point about 7x not being a Part
7 70 facility. Well, having fission products and these
8 other radionuclides is not unique to 7x. There is
9 lots of facilities that have fission products, Part 60
10 facilities, 61 facilities, 72, Part 30. There is lots
11 of facilities. It is not new, to have fission
12 products.

13 So, and so, I just -- in cautioning
14 against coming up with new terminology, we've seen
15 earlier what happens when you do that. I would say
16 that the system you have extended, when appropriate,
17 to use probabilistic techniques, is user friendly and
18 can, I think, be transparent.

19 You're going to have the same problem that
20 was mentioned here earlier, on inspection. You're
21 going to try and separate out what's important, in
22 terms of where you put your inspection resources,
23 which again, I think is user friendly, for extending
24 this quantitative approach along the lines in the NEI
25 recommendations, and not coming up with, you know, new

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1 techniques.

2 Some of the speakers were identifying that
3 they want to see what the worse case scenarios are.
4 You can actually do that, with those techniques, and
5 show what, you know -- we can show the whole spectrum.

6 But I don't think you need to come up with
7 a new category to do that.

8 MR. CAMERON: And John's point about
9 uncertainty, can that also be taken into account?

10 MR. GREEVES: When you get into these
11 quantitative techniques, you have to evaluate
12 uncertainty. You don't have to conclude that the
13 tails of the distribution are what you have to
14 regulate by. You don't regulate by tails of
15 distributions.

16 But when you go into these quantitative
17 techniques, you should be filling -- fully showing
18 that uncertainty, and the sequence of scenarios, that
19 would have to be done.

20 MR. CAMERON: Okay.

21 MR. WIDMAYER: If I could just add, that
22 would be another reason, that would be another thing
23 that the Committee would say was an advantage to using
24 the PRA, as its treatment of uncertainty.

25 You know, the notion that you have

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1 difficulty with the methodology because data doesn't
2 exist for something like that, this approach allows
3 you to determine and examine the uncertainty, and
4 understand, you know, what the, you know, faults of
5 the data and stuff mean, and helping you with your
6 prioritization.

7 MR. CAMERON: Okay.

8 MR. GREEVES: I would just add that --

9 MR. CAMERON: Thank you.

10 MR. GREEVES: -- you wouldn't regulate
11 with the tails of those distributions, okay.

12 MR. CAMERON: Thanks, John. We're going
13 to go to Kevin and Tom, and then come back up front.
14 Kevin Strickland, State of South Carolina.

15 MR. STRICKLAND: From an agreement state -
16 - standpoint, of course, when we look at a facility
17 like this, that's NRC licensed, you know, everything
18 is about containment and confinement.

19 So, of course, when you're talking about a
20 reprocessing facility, of course, you have fission
21 products at other facilities too, but the quantities
22 of them, and the magnitude of the levels is certainly
23 greater.

24 So, therefore, speaking from a regulatory
25 standpoint, and an agreement state, we would certainly

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1 like to see the higher risk with additional measures
2 taken to ensure that you didn't have a problem.

3 MR. CAMERON: Okay, thank you. Thank you,
4 Kevin. Tom?

5 MR. CLEMENTS: I had just a brief comment
6 and another question.

7 I appreciate the discussion about
8 uncertainty. I think the ball game has changed, in
9 the aftermath of Fukushima, where we've seen that a --
10 if a spent fuel pool accident was ten to the minus
11 six, two accidents at the same time, I don't know, ten
12 to the 9th, three, ten to the 12th, ten to the 15th for
13 four in a row.

14 So, I think that the uncertainty with
15 those accidents is going to be instructive for how the
16 NRC takes into account events that all of the sudden,
17 become from ten to the minus 15th to ten to the zero,
18 in a matter of hours.

19 So, I think the NRC -- it's incumbent upon
20 the NRC to be more cautious in its approach with
21 determining the uncertainty. I'll leave it at that.

22 And I had a question about one of these
23 charts and the term you used here, and I want to raise
24 again, because I do think that Savannah River Site is
25 probably the prime suspect for a reprocessing plant,

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1 and in NRC terms and what you have on this chart on
2 page 19, individuals outside controlled area, getting
3 back to the Savannah River Site, again.

4 Can I hear from the NRC, now, or how would
5 you approach this, as you develop the regulations? Do
6 you -- would you create a separate class of exposed
7 individuals, outside the controlled area, who would be
8 DOE workers, or are DOE workers part of the general
9 public? Thank you.

10 MR. CAMERON: Yawar, can you answer that,
11 and then make the point you were going to make? We'll
12 just go to you, now, if you understand Tom's question?

13 MR. FARAZ: Yes, I do. I think I do.
14 Someone who is not trained to respond to certain
15 events, whether he be an employee of the DOE or
16 another employee, or from another company that's
17 nearby or a resident, nearby resident, if that person
18 is not trained appropriately to respond to certain
19 events or accidents, then we would obviously identify
20 that person as a member of the public, or at the same
21 level. That person needs to be protected at the same
22 level as a member of the public.

23 So, that's the assumption that goes into
24 what we consider this class of person.

25 Now, that person is a trained employee.

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1 He knows what to do, how to respond, because a lot of
2 the fuel cycle events, you do have time, and there is
3 a certain procedure that you can follow, to mitigate
4 the consequences, and if that person is trained, then
5 yes, it could be considered as a worker.

6 So, it all depends on what the training
7 level is for that individual.

8 MR. CLEMENTS: Could I follow up?

9 MR. CAMERON: Go ahead, Tom.

10 MR. CLEMENTS: Maybe this was changing the
11 discussion a little bit from before, but in an event
12 of x-consequence, whatever it is, on a site such as
13 Savannah River Site, where an adjacent facility may be
14 impacted, which could set off a chain of events that
15 could have larger consequences, how are you going to
16 take into account, the presence of other facilities
17 nearby that may have fission products, transuranics,
18 plutonium, plutonium processing? How is that going to
19 enter into your determination of consequence of
20 events?

21 MS. OLSEN: Like Votgle.

22 MR. CAMERON: Again, this is a
23 hypothetical.

24 MR. CLEMENTS: Well, perhaps, not so
25 hypothetical if the industry is looking at Savannah

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1 River Site, but there is a MOX plant nearby, where
2 there is a very high consequence event, or even lower,
3 how are you going to take this?

4 MR. FARAZ: Yes, hopefully, I can explain
5 this, for an example. It's similar, a similar
6 situation.

7 The NRC regulates radioactivity,
8 radioactive material, and often, these facilities have
9 chemicals, you know, lots of chemicals present, as
10 well. For onsite chemical hazards, it's primarily
11 OSHA. For offsite, it's EPA.

12 Now, we have an MOU with OSHA, where by if
13 a chemical event, a purely chemical event occurs
14 onsite, and it affects the radiological safety onsite,
15 then the NRC would be responsible for that event, and
16 the licensee -- and that event would be addressed, a
17 pure chemical event would be addressed, would need to
18 be addressed in the ISA.

19 So, they would have to have appropriate
20 IROFS, to make sure that that event is appropriately
21 prevented or mitigated.

22 So, I hope that similar kind of situation,
23 that kind of explains, you know, your concern.

24 MR. CAMERON: And let's let Alex also, go
25 to Tom's concern, and then let's go to the rest of the

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1 tents, and I think we need to start our discussion of
2 general design criteria, before we go to a break.

3 Okay, Alex, this is on Tom's point, okay.

4 MR. MURRAY: Thank you very much. I'd
5 just like to build on Tom's question and points, and
6 Yawar's discussion.

7 First off, Tom was asking about basically,
8 a DOE site worker, and the terminology that is usually
9 used, that is called a co-located worker.

10 The NRC Commission has already set policy
11 on that. I believe the SECY was in 1998. I don't
12 remember the exact number for the SECY, but it can be
13 found, and in very simple terms, basically, it's
14 exactly what Yawar said.

15 It depends on the level of training. If
16 other workers on that site, outside of the NRC
17 facility are not trained, in basically, the hazards
18 that exist at that facility, they would be considered
19 to be members of the general public and criteria,
20 dose-wise, accident-wise, would - that would apply to
21 those workers, those other co-located workers, to use
22 that term, would be those criteria for members of the
23 public.

24 And it's very well discussed in the SECY.

25 It points out that often, on these very large DOE

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1 sites, people who are DOE workers include non-
2 radiation workers. They also include visitors to the
3 site, which would, under all normal conditions, be
4 considered members of the public, like mailmen,
5 forestry workers, FedEx people, HVAC fixer-uppers,
6 local contractors, etcetera.

7 Now, just to build upon Yawar's point
8 about, if you will, co-located -- I'll say NRC
9 facilities near each other, in the safety analyses for
10 those respective facilities, they would have to
11 consider accidents at the other facility as external
12 events and analyze them, and this is a general
13 approach the NRC has, whether it's a Part 50 facility,
14 a Part 70 facility, a proposed Part 7x facility, go
15 through the entire numbers in the NRC Code of Federal
16 Regulations.

17 But if another facility can have an
18 external event that impacts that one licensed
19 facility, it has to be addressed, in the safety
20 analysis, and that is well documented in many, I'll
21 say both regulatory aspects and guidance documents in
22 the NRC. Thank you.

23 MR. CAMERON: And thanks, Alex, and on
24 this particular point, Tom, if you and Alex and Yawar
25 could -- if you need to talk more about this, do this,

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1 you know, offline, perhaps, so that we can move on
2 with this discussion, and I think Yawar is going to
3 kind of put some questions before all of you.

4 So, let's go to Sven, right now, and then
5 we'll hear from Yawar.

6 MR. BADER: Okay, you know, what Alex put
7 out there is absolutely the right position, you know,
8 the ISA is a continuous process. So, even if DOE were
9 to build something nearby, the ISA process would
10 require us to evaluate that.

11 So, DOE would have similar activity going
12 the opposite direction. So, but -- and I'm not sure
13 I'm going to take us off course, but I have a question
14 regarding the slide that's not up there right now, but
15 there is certain likelihoods that were proposed up
16 there, that were associated with these very high
17 likely and highly unlikely.

18 And I guess my questions are, you know,
19 are there plants that put that into the regulation?
20 Will you be putting ten to the minus six for very
21 highly unlikely, or ten to the minus five, for highly
22 unlikely, or is this going to be something that the
23 licensee will establish, like Part 70 allows you to
24 do?

25 The reason I ask you that is because there

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1 is not much difference between 10 to the minus six and
2 10 to the minus 5th, unless you're dealing with
3 national phenomena, where there is clearly significant
4 jumps in the probabilities there, in the risks.

5 So, that's a question I wanted to ask.

6 MR. CAMERON: And Yawar, you want to put
7 some questions forward, but can you respond? Are you
8 the appropriate person to respond to what Sven just
9 asked?

10 MR. FARAZ: And I would probably defer to
11 Dennis Damon, because I think he might be in a better
12 position to --

13 MR. CAMERON: Dennis, do you want to try
14 to give us an answer?

15 MR. DAMON: Yes, I might mention what was,
16 what the rationale was. There's a thing, when we
17 promulgated the Part 70 Rule for the existing fuel
18 cycle facilities, there's a thing that goes along with
19 the rules, called Statement of Consideration.

20 And it discusses why the Commission chose
21 not to specify a definition for highly unlikely and
22 unlikely, in the Rule, and left it to the Licensees.

23 And it had, go to the Statments of
24 Consideration for the Part 70 Rule that came out in
25 2000, and it will discuss it.

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1 The rationale went along the lines of the
2 diversity among the facilities that we were applying
3 the rule to. In this case, we wouldn't necessarily
4 have that impediment.

5 So I'd have to say the rationale is a
6 little different. You'd be dealing, especially if you
7 were clear that you were dealing with a, you know,
8 liquid standard type of reprocessing plant, you
9 wouldn't have that impediment. Now, you do have the
10 impediment, that nobody has ever done on quantitative
11 risk assessment that we have access to a facility like
12 that.

13 But the rationale was the diversity and
14 the difference in the number of sequences that would
15 exist in plants. So they left a lot of flexibility to
16 the Licensees to define how they're going to deal with
17 that issue.

18 MR. CAMERON: Okay, thanks, thank you,
19 Dennis. Yawar, what's bugging you, so to speak?

20 MR. FARAZ: I think, you know, I really
21 appreciate these discussions, they are very good.
22 However, just one thing I wanted to point out is that
23 we're talking about accident sequences, individual,
24 the discussion is primarily based on an individual
25 accident sequence level.

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1 Which is good. But then there are other
2 questions that you have on Page 17, of the handout,
3 and they all elude to the total risk or the risk to a
4 member of the public from, you know, the entire
5 facility.

6 You know, the gamut of accident sequences
7 that are potential at that facility. So, I think if
8 we can maybe discuss that before going to the next
9 topic. As well as, there's another point that I'd
10 like to get input on. It's the prioritization of the
11 IROFS, is something that we've also added to the list
12 of items that you would consider.

13 And if there's any input on that, I think
14 we'd really appreciate it.

15 MR. CAMERON: Is that last one on
16 prioritization of the IROFS, does that fit into the
17 text fact discussion, or does it flow from this
18 methodology issue? I'm just trying to --

19 MR. FARAZ: I think it flows with the
20 methodology issue. It's something that we would like
21 an Applicant to provide in his application. I'm not
22 sure if the stakeholders have considered that or if
23 they're prepared to discuss it.

24 MR. CAMERON: Okay, well, let's --

25 MR. FARAZ: But any input would be good.

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1 MR. CAMERON: Two issues that Yawar would
2 like to get some input from people on. And Rod, I
3 know you had your tent up, but could you also talk to
4 those two questions?

5 MR. MCCULLUM: I might be able to, but I
6 did want to go way back to what Tom said earlier. He
7 was raising the question, and I think it's a good
8 question, of the impact of an event at one nuclear
9 facility on another nuclear facility.

10 And, I just want to say, that I think the
11 answer she got in the context of existing regulations
12 were correct, but I do want to say that is an
13 important question.

14 MR. CAMERON: Oh, you're mic is off.

15 MR. MCCULLUM: I didn't just say anything,
16 I guess, officially.

17 (Laughter.)

18 MR. MCCULLUM: I just wanted to comment
19 on, Tom made a very important point. He raised the
20 issue of the effect of an event at one nuclear
21 facility on another nuclear facility.

22 And certainly that's something, that as
23 Yawar said, we do address. However, I would point
24 out, and I would caution NRC, as you go through this
25 process, that something is being considered on a scale

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1 that's much bigger than this regulation, with respect
2 to Fukushima event.

3 Where you had multiple events in multiple
4 facilities and they did have an effect on each other.

5 So there's always a need to pay attention to what's
6 going on with the overall NRC task forces and how that
7 might affect, you know.

8 Not just to think of it in terms of what
9 might exist on Savannah River. With regard to
10 prioritization of IROFS, I think, and I'll go back to
11 Derek's discussion that I said amen to there.

12 That's really where the additional
13 quantitiveness and PRA does come into play, if you
14 can do it. If you have the data and the type of
15 system where PRA is useful.

16 Clearly identifying 382 IROFS and treating
17 them all the same is not a very focused approach to
18 ensuring safety. In the hybrid approach and again I
19 can't say this as well as Derek said it.

20 That's where the additional
21 quantitiveness comes in. Is it saying priorities.
22 You use ISA as your foundation to identify your IROFS,
23 and then where you can you look at the uncertainties
24 and the relative importance with the quantitative
25 methods.

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1 That to us, and I think that's what we
2 meant in our white paper, the more recent white paper,
3 that's where that white paper approach and the hybrid
4 approach come together.

5 So I think we've got good input on that.
6 And what was the other thing you wanted input on?

7 MR. CAMERON: The total risk limit?

8 MR. MCCULLUM: I'm going to defer to Sven
9 on that one, he fortunately just put his card up. I
10 think, yeah, I'll defer.

11 MR. CAMERON: Okay, well let's go, Derek,
12 do you want to say anything on these two points that
13 Yawar asked?

14 MR. WIDMAYER: No, but, Rod, I was going to
15 jump in and kind of repeat what I said before that Rod
16 said. The Committee is thinking that the PRA analysis
17 type of thing is where you'd be able to prioritize the
18 IROFS.

19 MR. CAMERON: Okay, good, thank you.
20 Let's hear from Sven and then Mary, and then we really
21 need to go to GDCs, although we've been traipsing
22 around it. So, Sven.

23 MR. BADER: I'll kind of throw it back at
24 you. When you say prioritization of IROFS, are you
25 talking about actually what's coming out of PRA and

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1 ISA, or are we talking about prioritization relative
2 to personnel, public versus worker?

3 MR. FARAZ: For some of the current, well,
4 some of the applications that had come in, under Part
5 70, we don't have a requirement to have them, the
6 Applicants to prioritize IROFS.

7 So when the time came to inspect the
8 facilities, you know, after the license was issued,
9 there was a need for the NRC to know which IROFS to
10 inspect to pay more attention to.

11 And so the NRC internally developed a
12 prioritization scheme. It wasn't based on a PRA. It
13 was based on several criteria, several factors we
14 considered and, based on those, we determined which
15 IROFS tend to be more important than the others.

16 For example, the ventilation, if a
17 ventilation system is an IROFS and it applies to
18 several accident sequences, it might be more important
19 to make sure that that ventilation system is, you
20 know, pay more attention to the ventilation system, as
21 opposed to a single IROFS that's only applicable to
22 one accident sequence.

23 So, there were several factors that went
24 in and we came up with that scheme. We felt that if
25 the Applicant goes through and does this

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1 prioritization as for the application, not only would
2 it help the NRC, obviously the NRC would review, would
3 conduct the same kind of review that it does for the
4 application, on the prioritization.

5 But it would help the NRC in its safety
6 review as well as in conducting the inspections. And
7 then we also felt that it would, since the Applicant
8 or the Operator, in operating facilities, in applying
9 margin measures to those IROFS.

10 That was the purpose of that.

11 MR. CAMERON: Sven, total risk and/or
12 prioritization.

13 MR. BADER: Let me go to prioritization.
14 Because I think the way I understood what you just
15 told me, is that it's based on the number of events
16 that rely on a safety system, an IROF, as opposed to
17 the receptor, or the consequence of the event, is that
18 right?

19 MR. FARAZ: That was just one factor.

20 MR. BADER: That was one factor, okay, all
21 right. And that's the way I would pose it, if you're
22 going to do a prioritization scheme there's going to
23 be a lot of factors involved.

24 You'll find for a facility, a reprocessing
25 facility, that there's going to be a lot of

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1 protections for facility workers, people that are
2 actually in the facility, so most of your shaky
3 systems will be devoted to them.

4 And, you know, our projects which had
5 thought about prioritizing and that fact that this is
6 protecting someone who is paid well, and understands
7 the hazards that they're working with, to prioritize
8 those IROFS at a lower level, but it just doesn't fly.

9 So, we didn't go through those
10 prioritization processes. You know, we are doing,
11 there are PRA approaches that are not in licensing
12 requirements, but you do PRA to look at your risks,
13 and you compare risks to one another.

14 And we think that's the appropriate way to
15 prioritize things. But we're not suggesting that the
16 PRA be a licensing basis to do prioritization of
17 IROFS, but I'm not sure, are we talking about making
18 prioritization of IROFS part of the licensing basis?

19 MR. FARAZ: Yes, the staff kind of
20 discussed, you know, Gap 5, as part of the
21 discussions. We felt that it would be way beneficial,
22 from a safety standpoint, for an Applicant to
23 prioritize its IROFS based on its important to safety.

24 And so, you know, that's based on past NRC
25 experience with other applications. So we felt that

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1 for reprocessing facility that can be done. That
2 would really, that would benefit our licensing review.

3 It would make it more efficient and
4 effective. And not only the NRC's licensing review,
5 but also its inspections as well as the Operators
6 application of margin measures to those IROFS. So,
7 that's a current feeling and we just want your input
8 or your response to that. How you felt about it.

9 MR. CAMERON: And, Sven, anything on total
10 risk? I hate to keep bringing it back and we're going
11 to go to Mary and then we're going to go on.

12 MR. BADER: You know, I don't exactly know
13 what total risk means. You know, I see the question
14 here and if you want to sum all the numbers from a PRA
15 approach, that will give you a total risk.

16 You know, an ISA approach is not going to
17 give you means to sum something up and give you a
18 total risk, and I don't know if that's what you're
19 looking for.

20 MR. CAMERON: So this, the concept of
21 total risk is, it's problematic in the sense that
22 you're not really sure what it means?

23 MR. BADER: I mean, are we talking
24 something like core damage frequency?

25 MR. CAMERON: Yes, I think, that's why I

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1 punted as well. When there's no core damage frequency
2 where there's no core damage event. Again, remember,
3 we're not at a reactor, we're not a fuel cycle
4 facility.

5 It's hard for us, it doesn't compute
6 really.

7 MR. DAMON: Let me take a shot at it.
8 What, there's two different concepts.

9 MR. CAMERON: You want to press your green
10 button.

11 MR. DAMON: It is. Let me take a shot.
12 The one I'm concerned about is the fact of, the
13 workers in a facility like this are really not in a
14 risk position that's that dissimilar from currently
15 facilities.

16 But the public is. And the reason is we
17 have this large radioactivity inventory. So this is
18 all in principle. It may mean practice these
19 consequence levels may not be actually occur due to
20 the nature of the accidents.

21 But in principle you've got the
22 radioactive inventory there. You can expose a member
23 of the off-site public to a high radiation dose.
24 Okay, that member of the public, presumably a
25 resident, is exposed to all accidents that could cause

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1 a release that could achieve those dose levels.

2 So you have to add them all up. That's
3 what I mean by total. You sum up all of the sequences
4 that effect that individual. So it's an individual
5 risk evaluation. Which, in principle, is what was
6 done for reactors.

7 The difference being, reactors basically
8 only have one scenario, a large release of radioactive
9 material. A facility like this might have others, but
10 it's really a very similar concept.

11 In reactors they can use large, early
12 release frequency. You could, in fact, define an
13 analogous concept for a reprocessing plant with
14 respect to the radiological risk.

15 MR. CAMERON: Okay, thanks, Dennis. And
16 we're going to go to Mary. At least we got some
17 discussion of total risk. We're going to go to Mary
18 now for final comment on this Gap, and then we're
19 going to jump into GDC and see how far we get and then
20 take a break. Mary.

21 MS. OLSEN: I actually wanted the slide
22 that was up before, with the chart, but speaking to
23 the question of the risk goal for worker and member of
24 the public, I think NRC should be extraordinarily able
25 to explain why they would regulate risk and protection

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1 differently for anybody impacted by any different type
2 of facility.

3 Why would somebody living near a reactor
4 have more or less protection, than somebody living
5 near a reprocessing facility? That's the kind of
6 question you're going to have to answer. If you
7 don't, just say yes.

8 So, I recommend that you grapple with
9 that, and I wanted the risk slide because in a real
10 incredibly interesting moment in time, in 1990, the
11 Commission, and I don't know how many people that work
12 at NRC actually know this.

13 But in the policy statement for the
14 expanded BRC policy, below regulatory concern, the
15 prospective deregulation of radioactive waste, they
16 actually printed a risk assessment for radiation.

17 Now I'm not endorsing it, I don't happen
18 to agree with that risk assessment, but you would have
19 to make a very high, for the individual I think,
20 death, you know, that's a pretty high consequence.

21 And it would be 35 in 10,000, because it
22 was 3.5 and 1,000, and this is at 100 millirems a year
23 for a 70-year lifetime. So it's not a single event of
24 100 millirems, it's the ongoing legal limit level.

25 But 3.5 in 1,000 or 35 in 10,000, is right

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1 up there in your top tier for a VHCE, very high
2 consequence event, for an individual.

3 So I'm just bringing that forward to the
4 fact that you have a pretty low bar already.

5 MR. CAMERON: Thank you, Mary. Let's go
6 to the GDC slide and, as John pointed out in his
7 presentation, the staff has ten categories, 78
8 potential GDC.

9 We heard that the NEI white paper or
10 discussion from NEI, also addressed GDC and so let's,
11 Rod, good one to open a discussion on this.

12 MR. MCCULLUM: Yes, I'll open it and
13 hopefully make it a short, provide something to help
14 make it a short discussion. We are not, industry is
15 not prepared today to comment on all 78 of these
16 general design criteria.

17 We only saw this a couple of weeks ago. I
18 will say that the approach of identifying categories
19 and within those categories, identifying specific
20 criteria of sound.

21 So I think NRC, I don't want to slow down
22 the process here. I think NRC has an approach that it
23 can use to inform its decisions to go onto the next
24 steps and recommendations to the Commission.

25 But certainly the topic of GDC should be

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1 the subject of very detailed interactions where all
2 the right folks, stakeholders and industry, around the
3 table.

4 And when I say all the right folks, this
5 is an area where the subject of technology and
6 neutrality really comes to a head.

7 You know, we've got AREVA at the table
8 here today. I've got Westinghouse in the audience.
9 GE wanted to be here but they couldn't make it. We
10 need to make sure, from a technology and neutral
11 standpoint, that all the various technologies, CV,
12 GEC, is covering the type of facility they might
13 intend to build.

14 So I guess what I'd say, in brief, is as
15 a placeholder to move forward, you know, good job NRC
16 but we definitely want to, you know, we want to have a
17 very detailed discussion with all the right players in
18 terms of, between the 23 that were in NEI white paper
19 and the 78 you've got.

20 And are those all the right ones? That's
21 a specific meeting. And I just simply want to say
22 let's, you know, as you move forward, later in the
23 year, let's have that meeting.

24 MR. CAMERON: That's a process suggestion,
25 I put it in the parking lot day. A discussion

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1 specifically on the GDC, because it's going to be a
2 pretty detailed, involved discussion that's going to
3 be necessary. Alex.

4 MR. MURRAY: Yes, thank you very, Rod, we
5 greatly appreciate that. I just want to add two
6 things. First off, in the staff review to date, the
7 staff has not found any technology-specific GDCs or so
8 forth.

9 I should really rephrase it. GDCs that
10 would be specific to a certain type of technology.
11 We're not 100 percent certain that will completely be
12 the case, but so far we do believe we can do GDCs that
13 are technology neutral.

14 MR. CAMERON: Alex, you believe that the
15 GDCs that the NRC has proposed, would cover all of the
16 potential technologies, I think that was Rod's
17 concern?

18 MR. MURRAY: That is correct. I also
19 wanted to clarify, we are still looking at developing
20 specific GDCs, however the table that's in the summary
21 on, what page is it? Twenty-six, these are areas or
22 issues which need to be addressed by GDCs.

23 They're not necessarily specific GDCs,
24 themselves, we think many will ultimately translate
25 into specific, general design criteria. But there are

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1 right now areas which seem to need a specific GDC.

2 MR. MCCULLUM: Yes, I agree, Alex, and I
3 think you're probably right, I just think that we need
4 to test what you've said with a detailed discussion
5 and look forward to having that.

6 MR. CAMERON: Okay, Derek.

7 MR. WIDMAYER: I think that's a sound
8 approach, I think that's good. And as far as Number
9 3, the question that you had and the notion that these
10 are just areas that may acquire a GDC, they were
11 asking whether they could rely on existing
12 requirements.

13 And, you know, of course, I think that's a
14 yes. That it's just, that's a process that they can
15 go through in these meetings and these discussions to
16 say, okay, you know there's already existing criteria
17 at 20.1304 or whatever.

18 We'll just cite that, and we don't need a
19 general design criteria that makes them do something
20 specific to meet that. So, you know, I think that's a
21 sound approach.

22 MR. CAMERON: Okay, and as we've mentioned
23 before, the GDC starts to take us down the road to
24 address Mary's concern about prescriptive
25 requirements, correct?

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1 MR.WIDMAYER: Yes, but I think, you know,
2 there's more to it than just the general design
3 criteria.

4 MR. CAMERON: Sure, sure.

5 MR.WIDMAYER: But that's step one.

6 MR. CAMERON: Anybody else on general
7 design criteria at this point? Susan, do you --

8 MS. CORBETT: I'm just curious, I mean I
9 understand that there are many different kinds of
10 reprocessing, different techniques, different
11 processes. And probably some that we don't know about
12 yet.

13 And how can you like a one size fits all
14 if we don't, I mean, shouldn't the design and all the
15 rules have, really be specifically around the
16 different kinds of processes, because they all have
17 different outcomes and different potentials and
18 different risk and different waste streams and all
19 kinds of different things.

20 I'm not sure of a one size, how can we do
21 a one size fits all?

22 MR. CAMERON: I think that that's a
23 concern I had, in terms of whether this total
24 framework is understood. Can someone explain, give us
25 a brief view of how all of this works together.

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1 With the GDC, the tech specs or these
2 IROFS, in other words, Rod was talking about GDC,
3 making sure it covers all technologies. Well, Susan's
4 concern is, is where do you get specific requirements
5 for a particular technology? So, Rod, can you talk to
6 that?

7 MR. MCCULLUM: Yes, I think Susan is
8 absolutely correct, a one size fits all approach you
9 won't get to. I don't think that means you need to
10 keep having a different regulation every time you have
11 a different technology.

12 I think, and that's a little bit about
13 what Alex was talking about. The goal here is to
14 define the GDC in a way that you can apply them to
15 multiple technologies.

16 And the way each technology would meet the
17 GDC, would be very different. And that's where it
18 goes across from what the NRC requires and to what the
19 Applicant does to meet the NRC's requirement.

20 For example, I mean I'm just, this is the
21 first one that my eyes landed on, you know, I see
22 Number 45, under radiation protection and shielding.

23 Now, that's going to be a criteria for an
24 aqueous process and for an electro-mechanical process,
25 or whatever processes we don't know about.

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1 The design of the shielding, the areas
2 where you're going to place the shielding. The
3 analysis of what systems need to be shielded and why.

4 That's all going to be very different and I think you
5 can specify a regulation that requires that criteria
6 be met.

7 And then do it in a way that each
8 Applicant can demonstrate how their technology meets
9 the criteria. But again, that's why we need the
10 detailed discussion.

11 MR. CAMERON: So that's how the specific,
12 the specific requirements for a particular technology
13 come in, the GDC is set and then for the particular
14 technology that License Applicant is going to have to
15 show how that particular technology meets that general
16 design criteria.

17 MS. CORBETT: I'm just concerned that
18 you're going to dictate the kind of process that's
19 going to be used by the criteria. You might, there
20 might be other processes that are better or more safe
21 or whatever.

22 But because of the criteria that you
23 establish, you're making this more difficult to be
24 used or something. I'm just worried about, you know.

25 MR. CAMERON: That's --

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1 MR. MCCULLUM: But we are, too.

2 MR. CAMERON: -- an interesting and
3 philosophical question, too.

4 MR. MCCULLUM: That's exactly our concern.

5 And I want, and it almost comes down to a question of
6 economics. And that's why I want all the technologies
7 represented in this detailed discussion of general
8 design criteria.

9 Because if some of them see, hey, this
10 advantages me or, you know, maybe there's a different
11 criteria that is more reflected. But I really want
12 to, I think you've expressed a valid concern and I
13 would hope you'd participate in the more detailed
14 interactions that would explore that.

15 Because we do need to make sure that we
16 fairly cover all the possible technologies.

17 MR. CAMERON: I think Susan's point goes
18 further than that. And the NRC might want to address
19 this. I think Susan is saying how can you ensure that
20 the safest technology is going to be used? And it
21 maybe harder for some technologies to meet the general
22 design criteria, but the NRC doesn't tell reactor,
23 potential reactor Licensees that they have to use a
24 certain type of reactor.

25 They have to meet the requirements. But

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1 is it clear what Susan's concern is? The NRC is not
2 deciding what is the safest technology to use. And I
3 don't know if anybody from the NRC, just wants to say
4 anything else to that, because I think that's a pretty
5 fundamental concern that people in the public might
6 have. Yawar, do you want to take it?

7 MR. FARAZ: I think that it will
8 definitely be a challenge to establish the general
9 design criteria for reprocessing facilities.

10 If you look at the design criteria for
11 reactors, they tend to be fairly specific in Part 50.
12 And that's because the design is well known.

13 We know there are PWRs and VWRs, it's
14 fairly constant. In fuel cycle the designs vary. The
15 facilities are very different. One, even the fuel
16 fabrication facilities tend to be very different
17 amongst themselves.

18 But if you go the Part 70, the general
19 design criteria are very general. There are
20 essentially statements. You shall make sure that to
21 prevent explosion, something is addressed at a very
22 high level.

23 So definitely it will be a challenge to,
24 without knowing a specific design, to come out with
25 general design criteria for reprocessing facilities.

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1 But for the ones that we know of, you
2 know, it's primarily aqueous and bio-processing or
3 electrochemical.

4 So, with those in mind, we have a good
5 understanding of what those technologies involve. And
6 so we'll try to establish the GDCs based on those two
7 technologies.

8 And, with this in mind, that there might
9 be future technologies that might come up later on and
10 make sure that those general design criteria can be
11 extended to those future technologies.

12 MR. CAMERON: Anybody else on Susan's
13 concern?

14 MR. MURRAY: Yes, if I could, Chip,
15 please?

16 MR. CAMERON: Yes, go ahead, Alex.

17 MR. MURRAY: This is Alex Murray again.
18 I've been quiet for too long. I should have a little
19 hour glass every five minutes.

20 MR. CAMERON: Not that there aren't
21 benefits.

22 MR. MURRAY: I think it's important to
23 everyone at the table and in the audience, to keep in
24 mind that the two aspects to NRC regulations. Such as
25 general design criteria.

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1 There would be a specific criteria that is
2 referenced or mentioned in the regulation. Okay, it
3 may be at a more higher level. Okay, the Applicant
4 has to meet that and has to show how they meet that
5 general design criteria.

6 In guidance documents, and that criteria
7 most likely or most ideally, would be phrased as
8 technology, in a technology-neutral way. And I'll
9 give an example in a second.

10 In supporting guidance documents, perhaps
11 a standard review plan. Perhaps a regulatory guide,
12 we're not sure yet. We would expound upon that and
13 give examples of what the staff of the NRC would
14 expect to see and it might be down to a specific
15 technology levels.

16 Now, let me just give an example and maybe
17 this will help clarify, examples are always good for
18 clarification. We have a potential general assigned
19 criteria or issue an area which we call
20 confinement/containment design.

21 It's number 13. The general design
22 criteria might read in the regulation something to the
23 effect that the Licensee shall prescribe the design
24 and safety parameters for the confinement or
25 containment system that is used at their facility to

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1 demonstrate that potentially hazardous radio nuclides
2 or other hazardous materials do not effect workers or
3 members of the public.

4 Okay, for an approach that is, say using
5 aqueous technology, okay, that design might consist of
6 negative pressures, you know, what sort of pressure
7 differentials the staff would expect to see.

8 And these might be in the regulatory guide
9 or guidance. Some draft numbers might be presented.
10 It might be different pressure zones, as you go from
11 no to less to potentially more contamination areas.

12 We would expect to see a greater, how
13 should I say, differential pressures, more filters,
14 more layers of protection, to use that terminology.

15 For an electrochemical technology in our
16 guidance we might point out that this would point out
17 what inert gases are used. How they are maintained
18 and purified. What levels of oxygen ingress
19 allowable.

20 What levels of oxygen should be specified,
21 etcetera, etcetera. Okay, just to give you a specific
22 example.

23 MR. CAMERON: Okay, thanks, Alex. Derek
24 and then Jim.

25 MR. WIDMAYER: Well, Alex did a good job

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1 there as far as explaining that there is this
2 hierarchy that NRC uses. I mean the tech
3 specifications is where you really get to where the
4 rubber meets the road.

5 You know, for a particular plant, a
6 nuclear power plant, a Westinghouse power plant, for
7 example, the NRC has a NUREG document that 380 pages
8 long.

9 The give the standard specifications for a
10 Westinghouse plant and then each individual
11 Westinghouse plant that's actually operating, has
12 their own technical specifications which show, you
13 know, on a specific piece of machinery, what the
14 numbers are supposed to say.

15 And when it deviates from those numbers,
16 what actions are supposed to be taken. So they will
17 bill down from the general design criteria all the way
18 to tech specifications for all those kind of hazards
19 that he was talking about.

20 You know, what the, how the machinery is
21 supposed to operate. NRC actually doesn't do this,
22 the Applicant does it and then NRC understands how the
23 Applicant is going to do it.

24 And reviews it and agrees to what the
25 approach the Applicant is going to take. It is a

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1 challenge to know whether you've got all the right
2 general design criteria.

3 One of the things that I thought of, when
4 we were talking about this, was this kind of relates a
5 little bit to whether you allow one or two step
6 licensing process.

7 MR. CAMERON: We'll bring that up when we
8 get, after the break, when we get to that. But, also
9 thanks for the segue to tech specs, when we get there
10 to, explaining the relationship between general design
11 criteria and tech specs.

12 Let's go to Jim and then see what Yawar
13 has to say, and then maybe we're ready for a break. I
14 think we are ready for a break. Go ahead, Jim.

15 MR. BRESEE: My comments also are directed
16 at the issue that Susan raised and that Rod discussed.

17 The fact that we need some additional roundtable
18 discussions with the appropriate people.

19 Specifically, let me consider what may
20 come out of some of the advanced R&D activities
21 currently underway. I think the most likely areas of
22 impact would be changes in head end and waste
23 processing, associated with rather standard
24 separations technologies. But, on the other hand, do
25 not rule out the possibility, even in the near term,

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1 that volatility processes, room temperature ionic
2 liquids.

3 There are a host of other potential
4 activities, which don't fit neatly within the
5 categories of what might be called conventional
6 separations.

7 And there I would use PUREX or variations
8 thereon, and perhaps electrochemical.

9 MR. CAMERON: Thank you, Jim. Let's go to
10 Mark and then finished up with Yawar. Mark.

11 MR. YEAGER: I kind of agree with Rod's
12 initial comment that this issue probably requires its
13 own meeting, because we are dealing with very
14 different technologies, and the fact that this meeting
15 that we're having now is with regard to commercial,
16 you know, proposed commercial reprocessing that would
17 happen outside of a DOE facility.

18 So, of concern to us is an agreement
19 state, the siting process naturally would be
20 controversial for us because we would be players in a
21 commercial scenario.

22 So I think it's important for the
23 opportunity for community and state regulator comment
24 when the process, if a process or a proposal for a
25 commercial facility in whatever state occurs, to

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1 ensure the transparency and to discuss this specific
2 technology, rather it be aqueous or whatever, that's
3 going to be applied.

4 I was kind of reviewing Table 1 here, and
5 just the specific numbers. And I could probably make
6 an argument for every single one of them, that the
7 state would have a concern with, with regard to their
8 mission to protect public health.

9 But the ones that immediately jumped out
10 at me were, for example, Item 8, which proximity or
11 co-location with other nuclear facilities. With us
12 that would probably be nuclear laundry, you know,
13 facilities that might be supporting activities at
14 proposed facility that would be licensed by agreement
15 state.

16 One of the things that Mary pointed out at
17 the beginning, is we do have historical, a historical
18 track record, although it never was implemented.

19 One of the things at West Valley and the
20 AGNES facility in Barnwell County, is each one of them
21 had a low level waste site co-located within them.

22 Barnwell, a lot of people don't realize
23 that was the reason why Barnwell was created, was to
24 support activities potentially at AGNES. So, as a
25 regulator, when you're applying ALARA, Tom, one of the

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1 things you want to do is minimize exposure and that
2 includes your workers.

3 So, having low level waste sitting around
4 your facility, is not ideal to fill that, you know, to
5 make sure that philosophy is met. So you would want a
6 convenient way to dispose of waste as quickly as
7 possible.

8 Especially if you have other waste that
9 doesn't have an avenue for disposal, and it has to be
10 stored. You're going to want to minimize your source
11 term.

12 So that would be a concern to us because I
13 don't see how a proposed commercial facility could be
14 sited without the company considering that potential
15 to not only create the processing facility, but also
16 the facilities that would support it.

17 The other items are Item 10. I won't go
18 into details on each one, but the ones that jumped out
19 at me is a state regulator with 10, 13, 14, 48, F-1
20 Monitoring Control, that goes back to the discussion
21 yesterday.

22 In this case, EPA needs to be your
23 partner, your regulatory partner in this part.
24 Because, again, there is a disconnect between the
25 dose, the dose limits to the public between NRC and

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1 EPA.

2 So, that's a concern, and continues to be
3 a concern for us. Forty-nine, again waste management.

4 I won't belabor that. Fifty-five equipment, or I'm
5 sorry, shipping and receiving.

6 That's the transportation element which
7 would effect local governments, local communities,
8 anything with, based on the decades of experience
9 we've had at Barnwell, I can't tell you how many times
10 we've had, you know, concerned citizen reports about
11 shipments with placards on it.

12 And they are perfectly fine there.
13 They're within every, they're compliant, but it's a
14 factor, that increased impact on the community, just
15 from again a psychological aspect.

16 There will be increased traffic, increased
17 potential for incidents. And even though the
18 transportation conveyances are very robust and there's
19 practically no possibility that they could be
20 breached, and that's a historical fact.

21 Six years of type B casks, no incidence of
22 a release. They're still going to create public
23 concern and they're going to create the need for
24 additional facility, you know, the facility operator
25 is going to have to be more proactive to the emergency

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1 response community.

2 That's an additional expense that needs to
3 be factored in, in the planning, if this is proposed.

4 Sixty-nine, spent nuclear fuel and radioactive waste
5 storage.

6 Spent nuclear fuel, NRC's issue,
7 radioactive waste storage. Again, that can become an
8 ALARA concern eventually to the workers. Because you
9 can only store so much, and I think every commercial
10 reactor has that concern.

11 Which is why they are all so happy that
12 WCS in Texas has opened its facility to be B and C
13 waste. Seventy, waste forum.

14 Again, I brought this topic up yesterday.
15 Based on the technology that will be applied, there
16 might be mixed waste issues, as an agreement state.
17 We've regulated facilities that have done bent scale
18 research with radioactive materials.

19 And had basically orphan mixed waste,
20 because there is no avenue to dispose of it. So we
21 babysat orphan waste and it had to be licensed and
22 just, we would visit it every time we had to do a
23 license inspection.

24 We'd go, okay, it's time to visit the
25 mixed waste, just to make sure it was properly

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1 secured. It's a waste forums that concern to us.

2 Seventy-six, the decommissioning inventory
3 limitations. How much are you going to be willing to
4 store or do you want to do what they have to do at
5 nuclear power plants now?

6 Stack it. There's criticality concerns.
7 Again, if there's no avenue for ultimate disposal.
8 And, again, it is policy, it's something that NRC has
9 to seriously discuss with the Blue Ribbon Commission.

10 There has to be an avenue created. I
11 think it's a good idea to have these regulations in
12 place, so when we do get things sorted out, that there
13 is a clear path forward and you don't have to, you
14 know, immediately rush this process.

15 But, again, there are a lot of things that
16 aren't regulatory, they're policy, and those have to
17 be addressed. And then finally, decommissioning.

18 We, somehow, it was before I actually
19 joined the Department. Somehow we got the license for
20 the AGNES facility. And we went through
21 decommissioning or de-licensing plan down there.

22 And, again, there's a lot of historical
23 information that would be of value. And I know NRC
24 has gotten information from every avenue that they
25 could to research this topic. But, again, there is a

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1 historical path, even though these facilities were
2 never used.

3 And there's a lot of lessons to be learned
4 and archived data that exists on decommissioning and
5 what happened and, you know, the good things and the
6 bad things.

7 So that could actually contribute to your
8 ability to come up with a robust general design
9 criteria. And that's pretty much all I had.

10 MR. CAMERON: Thank you, Mark, for those
11 specifics. We're going to hear from Yawar and then
12 finish up with Susan, take a break to 20 after 11:00,
13 come back and run to about 12:15. Hopefully that will
14 give us a chance to cover tech specs and one-step.

15 I don't know if we'll get to Operator
16 licensing, but, at least that's my sort of plan.
17 Yawar.

18 MR. FARAZ: Yes, I just wanted to respond
19 to one aspect that Mark brought up, before I get into
20 the overall how safety is applied to reprocessing.
21 And that was EPA and NRC requirements.

22 NRC's 10 CFR Part 20, actually requires
23 all Licensees to meet 40 CFR Part 190 limits. And we
24 expect that requirement to also apply to reprocessing.

25 Concerning safety, I think that was, Chip, that you

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1 had brought before.

2 Clearly, the safety analysis forms a basis
3 for safety of a facility. That's the baseline. The
4 safety analysis then, what it does is it identified
5 areas that need to be addressed by tech specs.

6 In addition, tech specs would have other
7 tech specs that I have discussed before, that may not
8 have a direct nexus to some of the accidents, but have
9 some relationship to overall safety, and that would
10 also be included in tech specs.

11 Then, in addition to the tech specs, you
12 have these general design criteria that John
13 Stamatakos had pointed out in the list of bullets.

14 A really important bullet was these areas,
15 these unknowns or things that may have been, not
16 necessarily overlooked, but not quite addressed
17 appropriately in the safety analysis report, in the
18 safety analysis.

19 So that general design criteria require a
20 baseline or that, you know, buildings and structures
21 be built and at a higher level of quality than what
22 you have, what you typically see.

23 So, this is how you essentially ensure
24 overall safety of a facility. And I think it's a
25 very, I could think of it as layers of protection.

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1 So you have the safety analysis and you
2 have the tech specs that implements the safety
3 analysis. And then in addition to that you have
4 general design criteria.

5 And, in addition to that, we have, you
6 know, Licensed Operators and other safety
7 requirements. There are several ways or several
8 layers that we are applying and we expect to apply to
9 reprocessing facilities.

10 MR. CAMERON: Okay, thanks for that
11 overview Yawar. Susan.

12 MS. CORBETT: I just wanted to thank Mr.
13 Yeager for presenting very well concerns that the
14 public of South Carolina would have about such a
15 facility being located here.

16 And I'd just like to add, I'm sure it's
17 buried in here, but I think we would also, in South
18 Carolina, be very concerned about water usage. And
19 I'm sure that's under, in here somewhere, but design
20 criteria should take into effect, in a world of
21 diminishing water resources, the fact that many places
22 are very concerned.

23 And there's been numerous fights, as we
24 saw with our water bill this past year. There's a lot
25 of concern about water usage in our state from

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1 industry.

2 The other thing that we would be concerned
3 about is decommissioning. What would be left on the
4 site? What will we get stuck with if it's brought
5 here.

6 I don't think that a reprocessing plant
7 has ever been successfully decommissioned anywhere and
8 cleaned up. I mean, all we have to look at is West
9 Valley and, what's the other one, I can't remember,
10 Morris.

11 And that didn't really operate, did it.
12 But you know, there's not a lot of experience in this
13 and so we, as South Carolinians, would want to make
14 sure that, you know, what are we going to get stuck
15 with in a decommissioning process and is there the
16 money to truly clean it up when it's all said and
17 done.

18 MR. CAMERON: Okay, thank you. And the
19 water usage issue is a very interesting one in terms
20 of how that plays out in the regulatory framework.
21 And maybe, quickly, when we come back, before we get
22 into tech specs, and we've been talking a lot about
23 tech specs or mentioning them.

24 So maybe, I'm not sure how big a
25 discussion that will be, but maybe the NRC could talk

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1 about, well how does, how does the water usage issue
2 in licensing of a reprocessing facility, how is that
3 covered?

4 We know in reactors there has to be a
5 certain, there's some safety considerations there. We
6 know in the environmental impact statement on a
7 facility that water usage is looked at generally, but
8 it may be useful for Susan and others to just have a
9 little discussion of that, when we come back.

10 But, why don't we come back, you know, I
11 have about three minutes to 11:00. Can we come back
12 at quarter after, and then we'll devote an hour to the
13 rest of it and only take 15 minutes out of lunch.
14 Thank you.

15 (Whereupon, the proceedings went off the
16 record at 10:57 a.m. and came back on at 11:20 a.m.)

17 MR. CAMERON: I wanted to, just real
18 briefly, to finish off the water quantity, the water
19 availability issue. And I'm just going to say a
20 couple of things as a facilitator to just set this up,
21 and if what I say is incorrect, okay, I would hope
22 that the staff would -- they'll be very quick to say,
23 that's not true, Chip, so why am I worried about this?

24 But with reactors, as I understand it,
25 there is a tech spec, there's a trigger in the tech

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1 spec that relates to water availability because it has
2 a safety implication.

3 I don't know whether there would be a
4 similar trigger for reprocessing facility, but outside
5 of that, water availability is discussed in the
6 Environmental Impact Statement on the facility.

7 Now, the NRC could, perhaps, and this is a
8 legal issue, the NRC could set a mitigating license
9 condition related to water availability. But the
10 issue is there, if it's not related to an Atomic
11 Energy Act responsibility, as opposed to a
12 responsibility under the National Environmental Policy
13 Act, the Commission, the staff is reluctant to do
14 those mitigating licensing conditions. Okay?

15 But I just wanted to see if we could give
16 Susan some knowledge about what is a very big concern
17 here, and here is not just Georgia, but South
18 Carolina.

19 Do you want to ask anything more?

20 MS. CORBETT: Well, I just -- I feel
21 stupid arguing for the industry here --

22 (Laughter.)

23 -- but it seems like, if you --

24 MR. CAMERON: Well, wait a minute.
25 Everybody should pay attention.

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1 MS. CORBETT: You want to back up a step.
2 You don't want to wait. You don't want to wait until
3 you've got this design approved that uses a lot of
4 water and then try to find a location where there is.
5 You might want to go back to the very beginning and
6 make sure the design criteria is one that assumes has
7 a world of diminishing water supplies.

8 MR. CAMERON: And is that where the siting
9 GDC category comes in, Derek?

10 MR. WIDMAYER: I think we have two
11 different things going on. One is, I think, that it
12 would be appropriate in general design criteria or
13 someplace that, you know, depending on the needs of
14 the facility, you would want to site it someplace
15 where there's adequate water supply, and of course --
16 okay, but alternatively, there's a whole nother
17 process that this facility is going to go through.

18 And I don't know what it's like. And it's
19 usually state-specific, local-specific, which is
20 you're going to -- this facility's going to have to
21 get a water usage permit to use the water.

22 And that's where I think your concern
23 would be addressed as to, you know, how much this
24 facility is going to use the water that needs to be
25 used for other things, and whether it's appropriate

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1 for it to be sited where it's being sited.

2 So, that's something, actually, where NRC
3 would not be involved much at all, is getting the
4 water --

5 MR. CAMERON: Except for the Environmental
6 Impact Study.

7 MR. WIDMAYER: Right, EIS, yes.

8 MR. CAMERON: But that might not result in
9 a specific regulatory requirement.

10 MR. WIDMAYER: Not from the NRC, but it
11 would from whoever's in charge of water permitting in
12 the local community.

13 MR. CAMERON: Perhaps.

14 MR. WIDMAYER: Yes.

15 MR. CAMERON: Alex, more on water, and
16 then we'll go to tech specs?

17 MR. MURRAY: Yes. I think it's a very
18 good point. I think it is addressed -- I would like
19 to say it is completely addressed, but I think that's
20 something the staff has to check on, as Derek was just
21 saying, that basically, the three, if you will,
22 regulatory areas, which should address it, but I
23 cannot guarantee they would, and we'd have to check.

24 The first area has to do with the safety
25 review, specifically, the General Design Criteria. We

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1 do, the staff, in its draft position, we do think
2 there should be a General Design Criteria related to
3 the site and the site parameters and how they match
4 the plant design. All right?

5 In our discussions, we have not explicitly
6 discussed water usage/limitations, though discussions
7 about arid versus wet sites have come up in the
8 context of water availability, okay?

9 How it would come out in a General Design
10 Criteria at this time, we do not know. Okay? We just
11 have flagged the issues and had discussions on the
12 issues.

13 Second part in the NRC process, licensing
14 process, we do require an environmental report from
15 the applicant, and the NRC subsequently prepares an --
16 most likely, an Environmental Impact Statement for a
17 facility of this type. And in that, water usage
18 issues, the impact of a facility including water usage
19 does have to be addressed.

20 And the third is just what Derek was
21 alluding to, there are local authorities. Sometimes
22 in some areas, it's the local government, other areas,
23 it's more at the state level, and they would have to
24 provide permits to the facility.

25 And as part of that permitting process,

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1 the appropriate water usage versus availability has to
2 be resolved.

3 MR. CAMERON: Okay. Thank you.

4 And thanks for bringing that up, Susan.

5 And we're going to go to tech specs.
6 Yawar and others have already given -- and Derek have
7 given us a great segue in terms of how tech specs fit
8 into this whole licensing framework.

9 And I should say this now, before I
10 forget, and it's an administrative issue. Jim Bresee
11 is taking the 6:00 plane tonight, and he has a taxi
12 ordered, but if anybody is also taking that flight
13 that's driving, if you could give Jim a ride. Or
14 you're welcome to share his taxi.

15 (Off-mic comments.)

16 Okay, great, well you guys -- you don't
17 need to raise your cards or anything.

18 (Laughter.)

19 You can just talk to each other offline,
20 okay? And here's another one.

21 MR. GREEVES: I'm catching an earlier cab.

22 (Laughter.)

23 So if anybody's headed for the airport
24 mid-afternoon, please let me know.

25 MR. CAMERON: Okay.

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1 MR. GREEVES: Cabs are expensive around
2 here.

3 MR. CAMERON: I don't know, now, I'm
4 confused.

5 MR. GREEVES: This is a gap -- next time,
6 make the hotel near the airport, please.

7 MR. CAMERON: Well, we could have been in
8 Columbia, okay?

9 Any rate, tech specs, I always look at Rod
10 to sort of give us a tee up on these things, but Rod
11 is not here.

12 What do we want to know, NRC, about tech
13 specs? What does anybody want to say about tech
14 specs?

15 MR. WIDMAYER: I was kind of interested in
16 Rod also, because, you know, I mean, I think that's
17 the way to go.

18 I think that's -- we talked about it
19 already, and I think that's what we would be doing,
20 and I think the approach the NRC's proposing is sound.

21 So I'm kind of curious as to how the industry feels
22 about it, and --

23 MR. CAMERON: Is there a controversy over
24 the use of tech specs? And do we call them now, or --
25 these are not the IROFS, right? Okay.

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1 So what needs to be -- what needs to be
2 throttled out in terms of the tech spec issue? Is it
3 like the more specific discussion on a GDC meeting,
4 because a lot of the details have to be hammered out?

5 Yawar, what do we want to talk about here?

6 MR. FARAZ: I think the tech specs, the
7 area of tech specs is a fairly straightforward issue.
8 They're required by the Atomic Energy Act for
9 reprocessing -- for production facilities, which a
10 reprocessing facility would be. So the question of
11 whether to have them or not is not there. You know,
12 they will be there.

13 We identified a couple of questions on
14 tech specs. First of all, we tried to explain our
15 general philosophy on how the tech specs would be
16 structured. If you want, I could maybe talk about an
17 example of a tech spec. I don't know if that will
18 help.

19 MR. CAMERON: Well, why don't you do that,
20 just so everybody knows how that works and can see how
21 it relates to everything else.

22 MR. FARAZ: Okay. Okay. When an
23 applicant does a safety analysis, they would identify
24 certain, you know, accident sequences which we're
25 calling a subset of the high consequence accident

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1 sequences, as very high consequence accident
2 sequences.

3 For these very high consequence accident
4 sequences, we're proposing that the applicant have
5 specific technical specifications. Now, what the
6 technical specification has, they have several items,
7 a safety limit that, if exceeded, you know, there's no
8 guarantee that the accident won't occur.

9 So you want to establish a safety limit.
10 Let's say it's a temperature limit of 300 degrees.
11 Beyond 300 degrees, there's no guarantee that the
12 accident will not occur, so that's the upper limit.

13 Then, they would have another operating
14 limit, or they may have more than one operating limit.

15 They may have a limiting control setting, where the
16 item that is measuring the temperature, the
17 temperature gauge, would sound an alarm that may be
18 set at 50 degrees, so, that would alert the operator
19 that this accident can occur, or you could exceed the
20 safety limit at a later time.

21 Now, the technical specification, what it
22 would do is, it would say, okay, it would first of all
23 specify these limits, and then it would also identify
24 the actions that are needed to be taken to make sure
25 that the safety limit is not exceeded.

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1 So, it will say, the operator has to turn
2 on a safety system, or actuate a safety system within
3 a certain amount of time. Maybe, you know, within one
4 minute, the operator has to turn on a actuator safety
5 system, or shut down the operation. And so it's a
6 very systematic way of making sure that the safety
7 limit doesn't get exceeded.

8 In addition to those actions that are
9 required, there are also surveillance requirements
10 that would be needed that would be specified in the
11 tech spec for the IROFS that are involved.

12 How often is often enough? Maybe you need
13 to ensure the availability and reliability of a
14 certain IROFS. Maybe you need to surveil it once a
15 month, and that would be based on the safety analysis,
16 or maybe it's once in six months.

17 But, you know, so that's the overall
18 structure. In addition to these specific tech specs,
19 we may also have additional tech specs that I talked
20 about before, such as, you know, administrative
21 limits, and some other things that may not have a
22 direct nexus to the very high consequence accident
23 sequence.

24 But we think that those are important from
25 a safety standpoint to ensure that the safety envelope

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1 for the reprocessing facility is maintained.

2 MR. CAMERON: Okay. And for Rod's
3 benefit, we started out with, there's no controversy
4 about whether there should be tech specs. Is there a
5 discussion like the meeting -- specific discussion on
6 the General Design Criteria needed to go into details
7 of tech specs?

8 And then Yawar gave us an example of how
9 tech specs work. I don't know if you want to add --
10 do you want to add anything on the whole tech spec
11 issue?

12 MR. MCCULLUM: Well, yes. Basically, our
13 position is is that the tech specs should be derived
14 from the safety analysis.

15 And I think going back to it, without
16 repeating some of the previous discussion, that is why
17 the safety analysis needs to be as straightforward as
18 possible. It think you saw that as a consistent theme
19 in our discussion.

20 It's also important that the tech specs
21 and the -- I think what we're going to talk about
22 next, the operating licensing, that those be
23 consistent, and I think because there is a level of
24 complexity in the safety analysis methodology
25 prescribed in your technical basis and there is some

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1 inconsistency.

2 I think you've got the operator licensing
3 is based on very high consequence events. The tech
4 specs are based on high consequence events.

5 So, in our view, operator licensing and
6 tech specs should be equivalent. It's when you have a
7 tech spec operation that you need to license an
8 operator.

9 There's one statement I wanted to refer
10 to, and let me get to it in the rationale for the tech
11 specs, if I can find it here. Page 31, okay. And
12 that's on the old one.

13 27? Okay, yes. Sorry. No, that's not --
14 yes. Waste incidental to reprocessing on the old one.
15 Now, I'm lost in the document.

16 But anyway, there was a tech spec -- there
17 was a statement in there that said something along the
18 lines of, tech specs where operations are similar to
19 those of reactors, and if that was the case, you would
20 have little to no tech specs.

21 So, again, coming up with a coherent
22 safety analysis basis for both the tech specs and
23 operator licensing, that's what we're interested in
24 seeing coming out of this.

25 MR. CAMERON: Okay. And actually, after

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1 this, I wanted to make sure that before we went out to
2 the public and broke for lunch that we had started our
3 discussion of the one-step licensing, so we may go to
4 that next.

5 And maybe there's not much to be said more
6 than the consistency issue that you raised on operator
7 licensing, but we do have time to do all that.

8 I just want to make sure that we get
9 everything out now that we need to on the tech spec
10 issue.

11 And Susan, we'll go to you, and then
12 Derek.

13 Susan?

14 MS. CORBETT: Well, on the end of page 31,
15 you ask topics for public feedback, and the paragraph
16 right before that, you say, "In addition, because
17 reprocessing processes would involve large quantities
18 of highly radioactive and other hazardous material,
19 the NRC staff considers it reasonable to establish in
20 the case of power reactors general tech specs that may
21 not necessarily trip the very high consequence
22 accident sequence criteria, but would still have a
23 clear and important nexus to public health and safety,
24 and examples of such tech specs may be a burn-up limit
25 and applying the ALARA to environmental effluents."

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1 Well, I know that years ago, because I've
2 seen graphs about this, when Savannah River was really
3 reprocessing, you could go and look at the charts of
4 the tritium that was being released into the
5 environment.

6 And I mean, it was enormous amounts of
7 tritium that were released into the environment of
8 South Carolina from the reprocessing there.

9 So I would want to make sure, the public
10 would want to make sure that we know exactly how much
11 tritium and other things like carbon-14 and xenon and
12 -- what's the other one, krypton, and all of the -- we
13 want to know.

14 We will never go back to those days when
15 that was being allowed to be released into our air.
16 And I don't know what they're going to do with it, and
17 if it's going to get tritiated and put into the
18 Savannah River, or what they're going to do with it.
19 So that would be very important to have tech specs
20 establishing the limits on those releases.

21 MR. CAMERON: And is that a tech spec
22 issue? Is that something -- Yawar?

23 MR. FARAZ: Yes, exactly. For reactors,
24 what we have is we have tech spec requirements on
25 effluents. And to ensure that they're -- or to

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1 demonstrate that they're complying with those tech
2 specs, reactors are required to submit to the NRC
3 their effluent reports on an annual basis.

4 And in those reports, they do identify the
5 -- all the radionucleides, and the quantities that are
6 released, as well as the impacts, potential impacts to
7 members of the public.

8 We expect that same -- or a similar type
9 of requirement to apply to reprocessing facilities.
10 And as I said before, we also would expect 40 CFR 190
11 to apply to reprocessing facilities, that that limit
12 the amount of krypton, iodine, and other
13 radionucleides.

14 MR. CAMERON: And in terms of public
15 concerns on the tech specs, are the tech specs
16 generally, will they be in the proposed rule, or will
17 they be in another document? Will they be license
18 conditions?

19 In other words, how will the public have
20 an opportunity to comment on the tech specs before the
21 rule is finalized?

22 MR. FARAZ: The requirement for having
23 tech specs would be in the rule. The actual tech
24 specs would be in the application.

25 MR. CAMERON: So in other words, all the

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1 public will see in a rule is there's a requirement for
2 tech specs.

3 And if the tech specs, the specific ones,
4 are in the license application, then the only way that
5 the public can get their oar in the water, so to
6 speak, on those specific tech specs is to try to
7 intervene in the licensing proceeding. Is that
8 correct?

9 I think people have a concern about how do
10 they comment, how do they -- how do they express their
11 concerns about those specific tech specs?

12 MR. FARAZ: I think you are raising the
13 issue about security versus, you know, what gets in
14 the public arena, correct? I mean --

15 MR. CAMERON: No, I'm thinking, forget
16 about any security considerations. Just take
17 something as straightforward as the releases, using
18 the example you just gave, would -- that's not going
19 to be in a proposed rule, the specifics, and I think I
20 can -- we can understand why.

21 But how will the public be able to express
22 their concerns, including the state government people?

23 How will the public be able to express their concerns
24 about specific tech specs, just a question for
25 information?

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1 MR. FARAZ: Clearly, we will have a
2 hearing process, and all parties to the hearing would
3 have that opportunity.

4 MR. CAMERON: Okay. So it would have to -
5 - it would come through the hearing process.

6 MR. FARAZ: Correct. Yes.

7 MR. CAMERON: Okay. Thanks. Thanks,
8 Jack.

9 All right. And Alex?

10 MR. MURRAY: Yes, I just wanted to expound
11 upon that just a little bit. Yes, the requirements
12 for technical specifications would be in the proposed
13 rule. We would expect they'd be somewhat similar to
14 the requirements for technical specifications which
15 are in Part 50 for reprocessing facilities.

16 Right now, we expect we may have to fill
17 in some blanks in some areas or some clarifications,
18 but the requirement currently exists in Part 50, and
19 we expect to carry that over into the new regulation.

20 As regards the specific details of some of
21 the tech specs, staff is planning to revise and in
22 some cases generate new guidance documents which would
23 go into some discussions at length about technical
24 specifications, again, analogous to some of the tech
25 specs documents which exist for nuclear reactors,

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1 which Derek Widmayer was referring to about an hour
2 ago.

3 There might be a document analogous to,
4 say, a standard tech spec for Westinghouse reactor, if
5 staff were to anticipate putting out guidance, I might
6 say standard technical specifications for an aqueous
7 reprocessing facility, as an example, assuming that
8 the proposed rulemaking goes forward.

9 And the third point, which Yawar
10 mentioned, and I don't think it was really heard or
11 interpreted by the audience, is we expect there will
12 be an annual reporting requirement on at least the
13 environmental releases and how the environmental
14 technical specifications are being met. All right?

15 Again, very analogous to the reactor
16 experience, and what the releases are, both in
17 concentrations and total quantities. Those are
18 usually included in those types of documents. All
19 right?

20 MR. CAMERON: And I think that's very
21 helpful, and the guidance documents where we might
22 have model tech specs, or -- I don't know if that's
23 the right word to use, but typically, the NRC would
24 issue those guidance documents for public comment, as
25 I understand it, so, just so the public knows where

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1 they're going to be able to have an opportunity on
2 this.

3 And Derek, and then we'll go to Yawar.

4 MR. WIDMAYER: Yes, I was just going to
5 point out, you know, this document that I referenced
6 for a nuclear power plant, we're talking way down the
7 road here as far as this reprocessing plant. You
8 know, I don't even -- ten years, whatever.

9 I mean, the conversation we were having
10 before where there should be meetings on these general
11 design criteria, I mean, that would be the next
12 appropriate step, to make -- the public wants to be
13 involved in that, to make sure that these high-level
14 considerations remain in the rule as far as something
15 that eventually would get addressed in technical
16 specification, including the types of things that we
17 were discussing before about the, you know, the
18 ambient room temperature or something like that.

19 You want to make sure your General Design
20 Criteria are built in such a way that that's something
21 that, you know, because it's a concern as far as the
22 hazard in the facility, would get addressed eventually
23 in technical specification.

24 So, I mean, there's a lot of steps that we
25 need to take before we get to tech specs.

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1 MR. CAMERON: Okay. Thank you.

2 MR. MCCULLUM: Yes, the industry would
3 welcome further discussions on tech specs as the
4 rulemaking progresses along those lines. And the
5 public should be involved, certainly.

6 MR. CAMERON: Great. Thanks, Rod.

7 And Yawar, more on this?

8 And then I don't know if Susan wants to
9 add anything, but --

10 MR. FARAZ: I want to respond to one of
11 Rod's comments. It's about consistency, and I think
12 the intent was that tech specs would be generated for
13 very high consequence accident sequences.

14 The -- rather than saying that, I think
15 what we did was we presented the criteria, and if you
16 look at the table on the criteria that we're proposing
17 for very high consequence sequences, they should be --
18 it should be in line with those.

19 MR. MCCULLUM: Yes, I'm just saying it is
20 confusing, because on page 24 of the original, you
21 talk about high consequences, and then on page 25, you
22 have this statement: "Technical specifications are
23 appropriate for areas and processes that reprocessing
24 and reprocessing facilities with hazards or
25 characteristics more similar to a reactor."

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1 So, you know, just clarification and
2 consistency, straightforward, coming from the safety
3 analysis, is what we're asking for.

4 MR. FARAZ: Understood.

5 MR. CAMERON: Okay. Let's go to Tom.

6 MR. CLEMENTS: Just to clarify, the tech
7 specs would apply to -- it would be technology-
8 specific in this case.

9 MR. FARAZ: Correct.

10 MR. CLEMENTS: Just, if you'd react for
11 the record, please.

12 MR. FARAZ: The answer is yes, yes. It
13 would be technology -- and just to, you know,
14 elaborate on that, Alex had mentioned that we may have
15 standard tech specs or something similar to what we
16 have for Westinghouse and GE reactors.

17 It might be a little challenging to do
18 that, without -- so I think it would be, what I would
19 expect is, the applicant would develop the technical
20 specifications and then the NRC would, you know,
21 review and approve them, if appropriate.

22 MR. CLEMENTS: Let me just ask, what do
23 you think the percentage of the design would have to
24 be completed before you were presented with tech specs
25 and react to them?

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1 MR. FARAZ: I think, you know, clearly to
2 generate specific tech specs, an applicant would need
3 a lot of design information. You know, they would
4 need, you know, all of the different limits that go
5 into technical specifications.

6 They would need to establish surveillance
7 requirements, so they clearly would need a significant
8 amount of design information available to be able to
9 develop those.

10 What that level is is hard to say. But,
11 you know, they would need sufficient design
12 information to be able to establish those tech specs.

13 I don't know if that helps.

14 MR. CAMERON: And Rod may have some
15 information for Tom on that.

16 MR. MCCULLUM: Yes, that was actually a
17 great segue into the discussion on one-step versus
18 two-step licensing.

19 MR. CAMERON: Right.

20 MR. MCCULLUM: Because for first of a kind
21 applicants, the level of detail may not be there in an
22 initial application. They may prefer a two-step
23 process.

24 I would point out that in a two-step
25 process, that gives the public an additional

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1 opportunity to see this at an earlier stage.

2 So, going back to our proposal, we'd like
3 to see the option of the applicant choosing either a
4 one or a two-step process.

5 MR. CAMERON: Okay. Let's go to the one-
6 step issue so that before we go on to -- for public
7 comment, which we'll do before we break for lunch so
8 that the public can hear that particular discussion,
9 and as Rod points out, it does have -- it does have
10 important public participation implications.

11 So, we heard from John's presentation. He
12 talked about the one-step licensing, similar to what's
13 done for reactors in the NRC rules in part 52.
14 Anybody want to start us off?

15 I'm sorry, Rod, I always look to you.

16 MR. MCCULLUM: Well, yes, again, we kind
17 of stated our position yesterday, and I just stated it
18 again. Reactor applicants currently have the option
19 of pursuing a part 50 license or a part 52 license,
20 which means they have the option of going for a one-
21 step approach or a two-step approach.

22 There may be some innovative reactor
23 licensees in the small reactor community who indeed
24 will go for an old-fashioned two-step license.
25 Certainly, the current applications for places like

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1 Vogtle are the new one-step licensing process.

2 And to the extent it needs additional
3 discussion, I'd be happy to answer questions. But
4 it's our view that recycling, reprocessing, you know,
5 plutonium green washing facilities should all have the
6 same option that reactor facilities have, so.

7 MR. CAMERON: So, does everybody
8 understand how the one-step -- and NEI is saying,
9 there should be the option, because there may be
10 people who want to come in under the two-step process,
11 which I take it is one-step, is the construction
12 authorization, or construction permit, and the second
13 step is the operating license?

14 MR. MCCULLUM: Yes. It lets you go after
15 a construction permit before you have the design
16 detail you would need for a one-step process. That's
17 very helpful to the applicant. It's also very helpful
18 to the public.

19 And you make decisions in a phased manner
20 which, given is the first time -- it would be a first-
21 of-a-kind facility. And again, that's the thinking in
22 some of the small reactor community, having that
23 additional step, having that opportunity to get the
24 review at one level of detail and then get a
25 subsequent review at another level of detail is

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1 valuable.

2 Now, when you're dealing with an
3 established technology, like an AP 1000 reactor,
4 you're looking for a higher level of certainty from
5 day one to reduce your business risk. And given that
6 you have the confidence that you will have a high
7 level of design detail going in, you want a one-step
8 process for business reasons.

9 MR. CAMERON: But NEI thinks that there
10 may be some reprocessing facilities where it would be
11 appropriate to use the one-step process.

12 MR. MCCULLUM: Certainly if, you know,
13 AREVA has its wishes of building regional facilities,
14 I would guess by the time they built the second or
15 third one, they would be preferring a one-step
16 process, given that they'll already have that level of
17 detail.

18 But I would imagine for any of the first -
19 - for whoever is first, they will probably want a two-
20 step process.

21 MR. CAMERON: Okay. Well, let's go to
22 Tom, and let's make sure that everybody understands
23 how this works.

24 Tom? Tom Clements?

25 MR. CLEMENTS: Yes, Tom Clements.

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1 Concerning the one-step versus two-step, I would be in
2 support of the two-step.

3 And as you referred to, Rod, the mPower
4 Reactor, they're choosing to do the two-step process.

5 In this letter to NRC Commissioner Klein, which has
6 been referred to in the Gap Summary a number of times
7 from 2007 from the Advisory Committee on Nuclear
8 Waste, they even say, and just to read it, "the NRC
9 should consider using the two-step licensing process
10 for spent nuclear fuel recycling facilities until the
11 NRC staff becomes familiar with their processes,
12 equipment and materials in their recycling
13 facilities."

14 So, I would think, yes, off the bat,
15 there's no question that it would have to be a two-
16 step process in my mind, because of the inexperience
17 with any of the technologies that are going to be
18 dealt with on an international level.

19 MR. CAMERON: And Tom or anybody around
20 the table, when the NRC is thinking about the rule
21 language itself on this that would allow the option,
22 how would they achieve language that would meet your
23 concern that if it wasn't an established technology
24 that it should be a two-step?

25 How would that be done in the language?

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1 I'm not trying to just put it all on Tom.

2 MR. CLEMENTS: I can't -- Tom Clements. I
3 don't know if I can really speculate on that, but I
4 think there would be some pretty big hurdles that
5 might not be able to be defined initially. So I have
6 some trouble conceptualizing how it could be placed in
7 the rule-making if it was locked in stone when we're
8 dealing with technologies that we really don't know,
9 right now, what they are, nor how they would be
10 designed and constructed, so the basis would have to
11 be two-step. I don't know what that language would be
12 if it would move to one-step.

13 MR. CAMERON: Okay, and Susan, and then
14 we'll come over, we'll go down this way, Rod, Yawar.

15 MS. CORBETT: I think I'm just fixated on
16 this water issue, but I could see a scenario where you
17 start building a plant and it takes ten years or eight
18 years to get it built, and in the time that you've
19 built it, there's been some change in your available
20 water resources, where you have to go back and re-look
21 at that, so I think a two-step process in that
22 scenario might be helpful.

23 MR. CAMERON: So would you -- I'm just
24 trying to test to see whether some people believe that
25 we shouldn't have a one-step option, that we should

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1 always be using two-step. So I'm trying to test that
2 out, because there are some concerns that have been
3 expressed.

4 MR. MCCULLUM: Chip, could I answer your -

5 -

6 MR. CAMERON: Yes, go ahead.

7 MR. MCCULLUM: I think you asked a
8 question previously as to how you would provide the
9 option, is that correct?

10 MR. CAMERON: Yes. Yes.

11 MR. MCCULLUM: We think that could be done
12 fairly straightforwardly. I mean, it's done, again,
13 in reactor space by having both Part 50 and Part 52 on
14 the books.

15 You could have two separate subparts to
16 this new rule, part 7x, and one could say, you,
17 basically, at some point in the rule, have language
18 that gives that choice, and go -- you know, if this,
19 go to part x.y, if that, go to part x.z. I think that
20 that --

21 MR. CAMERON: So, the applicant basically
22 chooses which way they want to go --

23 MR. MCCULLUM: Yes.

24 MR. CAMERON: -- and it may be that in the
25 pre-application discussions with the NRC, the NRC

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1 staff could indicate that maybe they're a little bit
2 worried that it was going to be a one-step, but it
3 should be a two-step, but basically leave the choice
4 to the applicant.

5 MR. MCCULLUM: I would leave the choice to
6 the applicant. And I would say that most applicants
7 would be considering the public interest or public
8 participation interest as a key decision point.

9 I mean, if I was an applicant trying to
10 build a reprocessing facility in a given community, I
11 would be interacting with my community in advance of
12 that as to what they would prefer, and I would factor
13 that very significantly into my decision as to how I
14 would proceed.

15 MR. CAMERON: Okay. Let's go to Yawar,
16 then to Derek, and then to Jim.

17 Yawar?

18 MR. FARAZ: Although our current efforts
19 are to develop a reg basis document and not to come up
20 with rule language, but if we are asked to develop a
21 proposed rule, I agree with Rod.

22 You know, I foresee two subparts to part
23 7x, one addressing the one-step licensing approach and
24 what the contents of the application would need to be,
25 and then one subpart addressing a two-step approach,

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1 where, you know, what the contents of a construction
2 authorization permit would be addressed, and then the
3 operating license application, what that would entail.

4 In addition to that, you know, if we go
5 forward with rulemaking, there will be a need to
6 develop a standard review plan. And if you're going
7 with a one step and a two step option, then we would
8 need a standard review plan that addresses the one-
9 step approach.

10 We would need a standard review plan that
11 addresses the construction, authorization,
12 application, and we would need another standard review
13 plan that addresses the operating license.

14 So, you know, I see -- I mean, it's not
15 that it can't be done. But I just see when you have -
16 - when you're adding options, you're also adding a lot
17 of effort that needs to go into this rulemaking as
18 well as developing the guidance.

19 MR. CAMERON: Okay. Thanks, Yawar.

20 Derek?

21 MR. WIDMAYER: Yes, I think it would be a
22 challenge, and he's expressed it fairly well as far as
23 making sure you have the flexibility described
24 correctly.

25 I think that the initial position of the

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1 committee that Tom was bringing up is that they would
2 prefer to see the two-step licensing process done at
3 least for the initial facility.

4 And what I was going to add that as far as
5 the one-step process is concerned, there's been a lot
6 of difficulty with the ITAAC. It's been somewhat
7 problematic for the committee.

8 So by the time we get to the reprocessing
9 facility in ITAAC, maybe we'll have a lot of lessons
10 learned, and a lot of the problems will be ironed out,
11 but I think that's also something that we want to
12 think about as far as that one-step processes, which
13 things would be appropriate for ITAC, so.

14 MR. CAMERON: Okay. And Jim?

15 MR. BRESEE: Just as a reminder, earlier
16 in our discussions yesterday, there was a note that
17 one of the unique features of the used or spent or
18 whatever fuel target that we have in this country is
19 an enormous quantity. The total quantities at the
20 moment are close to 60,000 metric tons.

21 The largest reprocessing or recycle
22 facility in the world operating at full capacity could
23 not process the backlog in less than 50 years.

24 So, it's clear that if recycling or
25 reprocessing ever becomes a method for waste

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1 management in this country, there will be multiple
2 facilities.

3 And so the point about the first of a
4 type, perhaps, requiring two-steps simply because of
5 insufficient backlog by -- could very well result in
6 future activities of a similar type being licensed by
7 --

8 MR. CAMERON: That might be more
9 appropriate, then, for one-step, because it would be a
10 replication, perhaps, or --

11 MR. BRESEE: That is certainly one of the
12 conceivable futures.

13 MR. CAMERON: Okay. Thank-you. Yes, what
14 I'd like to do is go out to the public, and then we'll
15 come back. And you have to go sit out there.

16 (Laughter.)

17 No. I know we will. I know we will, come
18 on.

19 (Laughter.)

20 All right. Let's go to the public. Let
21 me go to Suzanne and her colleague first on this.
22 Well, let me go to Suzanne and then to the woman
23 sitting beside her.

24 MS. RHODES: Okay. Thank you very much.
25 I've learned a lot here the last couple of days. I'm

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1 really glad I came. I'll contradict myself.

2 I think this was an extraordinarily useful
3 meeting. I hope it doesn't go past the draft stage,
4 but I hope you do something good with the draft to
5 keep it available and figure out a way to put comments
6 on it, perhaps.

7 The other misperception I had, I thought
8 that because of the discussion of waste minimization
9 that was supposedly associated with reprocessing that
10 this would be a more or less government function out
11 of the waste fund prior to repository, and then some
12 sort of a mechanism to sell the product back to
13 industry.

14 And I understand that that is not at all
15 the case, that I guess what you all are thinking now
16 is that individual utilities would make individual
17 contracts with reprocessing facilities, whatever, as a
18 corporate decision, and there would be corporate money
19 rather than taxpayer money financing all of this.

20 And I don't know if this is still up in
21 the air, or if it is definitely -- corporations would
22 want to go forward.

23 If that were the case, somewhere down the
24 line, before this gets too far away, I think there
25 ought to be a serious discussion with the industry.

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1 And maybe there already has, I know you all, NEI is
2 extraordinarily good at that.

3 But I don't want it to turn out like
4 another MOX where it's a party where nobody wants to
5 come. It's a lot of very complicated things that are
6 going to get people inflamed and use a whole lot of
7 staff resources, if nothing else.

8 But anyway, I've really appreciated the
9 kind of tenure you all have had with the industry and
10 with each other, two different kind of tenure. But
11 anyway, thank you very much.

12 MR. CAMERON: Thank you. Thank you very
13 much, Suzanne.

14 And Brandon, you have Suzanne's
15 information.

16 And if you could just introduce yourself
17 to us.

18 MS. PARKER: Hi. Thank you all for
19 allowing me to speak today. My name is Debbie Parker,
20 and I am the legislative and program director at
21 Conservation Voters of South Carolina, which serves as
22 the political voice of the conservation community in
23 South Carolina.

24 We actually host something called the
25 Common Agenda Process, which is a consensus-building

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1 process that we host with approximately 40 different
2 conservation organizations in South Carolina to
3 establish a set list of environmental and legislative
4 priorities each year.

5 And I just wanted to submit some formal
6 written statements actually that I have copies of for,
7 I guess, the panel, to put on the record about the
8 conservation community's position on nuclear energy.

9 Although, as you all may know, the general
10 conservation community in South Carolina does not have
11 one set position currently as to the future of nuclear
12 energy and the role it may play in the energy mix, but
13 we all are very much unified on our position against
14 further storage of more nuclear waste at the Savannah
15 River site or anywhere else in South Carolina.

16 So my comments actually refer more to
17 that. And I notice, I think you all spoke a little
18 bit more about that yesterday, but I just wanted to
19 make sure that South Carolina was on record today
20 about our feelings from the conservation community on
21 nuclear storage.

22 We deeply appreciate the important role
23 that Savannah River site has played in our nation's
24 defense. Our own organization has developed strong
25 and positive relationships with our state's military

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1 community in support of efforts to reduce our
2 country's dependence on foreign oil and promote its
3 national security.

4 As you may know, the conservation
5 community in South Carolina has played a constructive
6 role in discussions about the future of nuclear energy
7 in our state. We know that meeting our country's
8 future energy needs will take a balanced approach, and
9 that we need to look openly and objectively at all of
10 our energy options.

11 However, our community has also worked
12 very hard to establish consensus on nuclear waste, as
13 South Carolina has already carried more than its fair
14 share of the national nuclear waste burden.

15 In 2000, our community helped negotiate
16 the Atlantic Compact, which closed the Barnwell
17 Nuclear Waste Facility to all states but South
18 Carolina, Connecticut, and New Jersey.

19 Efforts to undo the Atlantic Compact in
20 2007 led to a spirited and successful defense of the
21 compact. In short, South Carolina has spoken firmly
22 and finally on the issue of importing nuclear waste to
23 our state. We therefore strongly oppose any effort to
24 consider SRS as a possible repository of greater than
25 class Z and GTCC-like waste.

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1 There's obvious geologic and environmental
2 unsuitability of the site. SRS has sandy soils and a
3 wet climate, making it highly unsuitable for any kind
4 of nuclear waste disposal near the surface. Two
5 obvious and possible storage options being considered
6 for GTCC waste, surface vaults and trenches, are
7 especially incompatible for SRS.

8 Second, any proposal to bring GTCC waste
9 to SRS actually violates the current and stated
10 mission of the site, which is to reduce the
11 concentration and longevity of high-level waste
12 currently on site.

13 The Department of Energy's own Office of
14 Environmental Management, which is heading the SRS
15 cleanup effort, has stated that footprint reduction is
16 a major goal, and our nation's taxpayers have devoted
17 nearly \$1.6 billion in Recovery Act funds towards that
18 goal. Opening SRS to GTCC waste runs exactly counter
19 to this effort.

20 And finally, bringing GTCC waste to SRS
21 makes little sense considering how far behind the
22 facility is in meeting its waste reduction mission.

23 In its comments opposing GTCC at Savannah
24 River Site, our South Carolina Department of Health
25 and Environmental Control observed approximately 36

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1 million gallons of high-level mixed waste are stored
2 in aging tanks with leak sites, while there's
3 currently no operating treatment facility with the
4 majority of that volume.

5 A substantial volume of trans-uranic waste
6 remains in storage at SRS awaiting appropriate
7 disposition. Radioactive contamination remains in
8 many areas slated for future cleanup decisions.
9 Disposal of GTCC and GTCC-like waste is inappropriate
10 at SRS, given the current cleanup backlog.

11 Thus, Conservation Voters of South
12 Carolina and other conservation organizations would
13 like to offer two immediate steps.

14 As you know, during DOE scoping meetings
15 in 2007, many Americans offered Hardened On Site
16 Storage as the best storage alternative while a long-
17 term solution is formulated.

18 With Hardened On Site Storage, GTCC waste
19 and irradiated spent fuel remains at commercial
20 nuclear power plants in long-term storage so that it
21 can be monitored and protected.

22 While HOSS is not a permanent solution, it
23 provides a safe way of storing waste until a
24 scientifically sound solution is found.

25 Secondly, we recommend that DOE not

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1 proceed with the final environmental impact statement
2 for greater than Class C waste, but rather develop a
3 new draft EIS that includes HOSS facilities as the
4 best interim solution for GTCC waste, and then seeks a
5 permanent geologic disposal site for GTCC waste
6 disposal that reflects our best science, not politics.

7 And we feel like as the deliberation
8 continues to manage the high level nuclear waste
9 accumulating at our power plants, we'd like for you to
10 consider that South Carolina's conservation community
11 has very grave concerns about any proposals that would
12 bring more nuclear waste to our state.

13 Conservation Voters of South Carolina,
14 along with the Coastal Conservation League, South
15 Carolina Wildlife Federation, and numerous other
16 groups that we work with of the 40 organizations that
17 are part of the Common Agenda would like to state for
18 the record that we oppose importing waste under any
19 conditions, including under the guise of interim spent
20 fuel storage and/or reprocessing proposals.

21 And thank you all again for holding these
22 very important meetings over yesterday and today, and
23 thank you for all your hard work as you try to figure
24 out the best solution.

25 MR. CAMERON: Thank you for those remarks,

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1 Debbie.

2 And we're going to go to the good doctor
3 here, and then we're going to go to the two Brets from
4 the NRC, and then we'll come back to the table for
5 Alex. And perhaps we'll be ready to break for lunch
6 then.

7 Yes?

8 DR. HAYES: Thank you. Do I need to
9 introduce myself again?

10 MR. CAMERON: No. We know. Brandon
11 knows.

12 DR. HAYES: All right. This goes to item
13 four on page -- I think it's page 9, that says, what
14 does the NRC need to consider when updating the NUREG-
15 1140?

16 In this meeting, there's been a
17 significant focus on quantitative analysis or
18 probabilistic risk assessment methodology.

19 I'm reminded of a book I recently was
20 reading by John D'Agdata, in which he quotes someone
21 who I cannot remember, but I think it was a Fairleigh
22 University professor, who said that relying on
23 probabilistic thinking causes us to dismiss the
24 possibility of an event.

25 And, of course, probabilistic thinking is

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1 exactly what caused science and engineering to fail to
2 prevent such recent disasters as TMI, Chernobyl,
3 Fukushima Daiichi, Exxon Valdez, BP Deepwater Horizon,
4 and numerous others.

5 We've fallen deeply into this pit of
6 probabilistic thinking.

7 Considering these disasters leads us to
8 the broader question of why the US has even moved to
9 spent nuclear fuel reprocessing. Derek just said that
10 reprocessing plants are 10 years down the road. And
11 Jim is saying that the largest reprocessing facility
12 possible would take 50 years to burn up all of our
13 current storage of SNF.

14 Someone yesterday mentioned the fact that
15 fast reactors are 50 years down the road. And I
16 wonder why the government isn't focusing instead on
17 faster reactors rather than our current focus on
18 reprocessing spent nuclear fuel, because we could go
19 to transmutation through fast reactors, if I
20 understand correctly the concept of fast reactors.

21 And fast reactors would relieve us of the
22 public hazard exposure problem, and probably even more
23 importantly, the worry we have for nuclear
24 proliferation.

25 MR. CAMERON: Thank you very much.

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1 We're going to get Brett from OGC, and
2 then we'll go to Bret from NRC.

3 MR. KLUKAN: Hi, this is Brett Klukan from
4 the Office of General Counsel. Like most attorneys, I
5 am principally concerned with my own self-interest.

6 (Laughter.)

7 And as an attorney who, were this, I mean,
8 moving forward, would probably be one of the ones
9 involved in the licensing of a such a reprocessing
10 facility, I'd like to ask a clarifying question to
11 industry.

12 When we talk about one-step licensing and
13 part 52, that actually can be a couple of steps with
14 regards to the early site permit and LWA process. And
15 the first part of my question goes to that. Would it
16 be industry's expectation to carry over those parts
17 into part 70x?

18 And then the second part is, if we are
19 adopting -- if it is industry's intent to essentially
20 carry over part 52 or the licensing structure in part
21 52 into part 70x, would it be industry's expectation
22 that the hearing structure, meaning, there's a hearing
23 potentially at the ESP stage, a hearing at the COL
24 stage, whatnot would be the same?

25 MR. CAMERON: Okay. Good questions.

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1 Rod, why don't you give us an idea on
2 that, and I know that the second Bret has something
3 for you too, but why don't you do that?

4 MR. MCCULLUM: Well, while the possibility
5 of an ESP for a recycle facility is actually very
6 intriguing to me, I work with ESP folks also at NEI,
7 have not heard any interest expressed from industry on
8 that.

9 It does, on one hand, give you an option
10 to make the one-step processing process somewhat two-
11 step, which I think is what you're getting at. There
12 is that option. So you'd really, you'd have a nesting
13 of options.

14 However, the reason Part 52 was designed
15 that way was because it envisioned the design -- it
16 envisioned a standardization of reactor designs.

17 It envisioned two separate tracks, the
18 track of picking a site, and the track of designing a
19 reactor, and then the reactor vendor would sell to
20 multiple sites.

21 So the reason an ESP makes sense is
22 because you address only the siting issues, and then
23 you marry that up with another process that addresses
24 the reactor design, and then you go for a COL.

25 In this case, and I think a lot of the

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1 discussion we've had that has been educational to me
2 has born that out, that it's hard to -- the design
3 issues and the siting issues are intrinsically
4 related.

5 And I'm thinking the public would want to,
6 in both steps, be looking at the design of the
7 facility and how it protects their -- in areas like
8 effluents, particularly.

9 So it's an intriguing possibility, but
10 again, that's one of the reasons why we'd like the
11 option, because we don't see the same utility for
12 those parts of the 52 process in part 7x.

13 MR. CAMERON: And any ideas on how the
14 hearing process might work? I don't know if you want
15 to tackle that one. That was the second part of the
16 question.

17 MR. MCCULLUM: Well, I think it worked
18 very well.

19 (Laughter.)

20 I mean, you know, it is one of the things
21 that I think makes NRC an outstanding regular is that
22 their processes allow the public to effectively have
23 their day in court.

24 You know, if you don't like something that
25 NRC is seeking to license, then, you have that

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1 opportunity to intervene.

2 And, you know, if your contention meets
3 the standards for being accepted and all that, your
4 legitimate concerns will be heard by an adjudicatory
5 panel that essentially, that's like going to trial.
6 That's an adversarial proceeding.

7 So, you know, providing opportunities to
8 do that in a two-step process, you know, that the
9 public would benefit from that.

10 And again, I would think that a potential
11 applicant, I mean, if I'm a potential applicant and I
12 want to build a reprocessing facility in a community,
13 I'm going to be very concerned about building support
14 and trust with that community.

15 So I'm going to want to seek a process
16 that the community has confidence in, and --

17 MR. CAMERON: Okay. Thank you, Rod.

18 And let's go to Bret Leslie, easier to
19 pronounce for me. And then we'll come back up to the
20 table to Alex, anybody else. And then we'll take a
21 break for lunch.

22 Bret?

23 DR. LESLIE: I actually had four things,
24 but because we all want to go to lunch, I'm only going
25 to talk about one right now, get back to the other

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1 ones later.

2 But it was something that you said
3 earlier, Rod, and it kind of plays into the overall
4 methodology.

5 I think when the staff was -- and I'm
6 primarily talking about the people who were up at the
7 table, but when we were approaching this, we were
8 taking into mind the idea of technology-neutral,
9 providing flexibility.

10 And so I think when we were looking at,
11 what are the possibilities in terms of how large a
12 facility or the type of -- the various parts of a
13 reprocessing complex, we weren't necessarily looking
14 at limiting in terms of how large that source term
15 might be.

16 But you said something that was very
17 intriguing, which was this. You don't envision having
18 source terms that would be beyond the Protective
19 Action Guideline. In other words, you wouldn't get to
20 the triggers that Dennis was talking about.

21 Now, that -- NRC could go that approach
22 and say, yeah, for any reprocessing facility, for any
23 part of that facility or any technology, you can't
24 have a larger amount than this, and then those
25 criteria that Dennis talked about would never come

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1 about.

2 I'm not sure that's what you meant, but
3 that's how I'm interpreting it. And so I think if you
4 can explain how that plays into kind of -- how does it
5 play out, either in terms of IROFS, or is that really
6 what you meant?

7 MR. MCCULLUM: Not exactly, and I'm glad
8 for the opportunity to clarify. You know, I'm not
9 saying that we would limit by inventory the facility
10 so that absent any safety controls, you would never go
11 beyond the protective action guidelines.

12 What I'm saying is that we would be
13 looking in our design philosophy to make sure we put
14 in place IROFS that would prevent you from going
15 beyond that.

16 You know, when we're looking at impact of
17 the public health and safety, we're going to look at
18 putting in place seawalls and ventilation systems that
19 prevent you from getting to that -- to those more
20 protective thresholds, you know.

21 And what I was really doing was
22 criticizing the utility of having yet another level of
23 accident above a high consequence accident, there's
24 very high consequence, and he was talking about some
25 extremely high thresholds.

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1 And I'm thinking, I'm not going to wait
2 until I have the possibility of an accident at that
3 level before I start designing against it. What I was
4 talking about was a matter of design philosophy.

5 If my design philosophy is going to be
6 protective at a more stringent threshold, it's going
7 to aim for meeting a more stringent threshold to the
8 point where I didn't see the additional utility of,
9 you know, of that. Then I'll look at Sven. Does that
10 make sense?

11 MR. CAMERON: Okay. I think -- yeah.

12 MR. MCCULLUM: So, yeah, no, I was not
13 saying that we would limit -- we would never have the
14 inventory where if there were no controls in place, we
15 would never have to worry about those things. I was
16 talking about where we focus the design of the safety
17 -- in the IROFS.

18 MR. CAMERON: Okay. Thank you.

19 And Alex? Alex Murray.

20 MR. MURRAY: Finally. I don't know if I
21 can handle this. Okay.

22 MR. CAMERON: And thank you, Alex.

23 MR. MURRAY: Thank you, Chip. Its own
24 oxygen for a while, there, you
25 know? (phonetic) ***12:23:31

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1 I just wanted to give a couple of
2 informative comments, if I could, please. The first
3 one, since we're out of time on it, I encourage
4 members on the panel, members in the audience, to
5 submit information, written information, on the level
6 of detail that they might envision for either a one-
7 step or a two-step licensing process.

8 In the past, some of the Part 70 reviews
9 and some of the Part 50 and 52 reviews at the level of
10 detail that -- how shall we say -- well, let's just
11 raise it this way.

12 There has been a difference in perception
13 about the level of detail needed to meet the
14 regulation, between industry, staff, and the public.
15 Okay, after, and it comes out with five or six
16 opinions, not just three.

17 So I encourage everyone, please, if you
18 have thoughts, intelligent and constructive thoughts
19 on the matter, please submit them as written comments.

20 Second, there was a very good comment from
21 a member of the public about risk, and if you just do
22 risk-informed, risk analyses, you can have -- still
23 have bad events occurring.

24 And I want to emphasize the NRC's proposed
25 approach is to take a balanced view, a balanced, if

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1 you will, methodology, through this regulation.

2 Yes, it will be risk informed but it will
3 also be performance based. There will still be
4 general design criteria which must be met, okay,
5 absolutes. Not relatives, not risk-based. Okay?

6 There are requirements that will be
7 associated with reprocessing types of facilities in
8 this proposed rulemaking, assuming it goes forward.

9 And I encourage, if you have further
10 thoughts on that, please, again, submit to us some
11 written thoughts, some written comments on that.

12 And the last item, and again, this gets
13 back to, you know, please think on this, and if you
14 have thoughts and constructive comments, please submit
15 them as well, and this relates to this -- what we call
16 this methodology where we're introducing the concept
17 of very high consequence events.

18 Please understand, a very high consequence
19 event, we are basing the identification of these
20 events upon unmitigated, unprevented consequences,
21 okay, in a manner similar to how we approach safety
22 analyses at the NRC and in the nuclear industry.

23 This does not mean that the event occurs.
24 Okay? We would not allow these events to occur,
25 okay? They have to be -- this is purely for

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1 identification of these events before controls are
2 applied to either prevent and/or mitigate their
3 occurrence or their severity. Okay?

4 So it's very important to keep that in
5 mind.

6 And I do ask, again, for comments on that
7 methodology, and also, how would we identify these
8 events? We have been struggling with, do we take an
9 approach that is strictly dose-based? The NSCR and
10 myself had mentioned some potential limits earlier in
11 the discussion.

12 Should they be somehow material based,
13 okay, which is based on what NEI did with a proposal
14 where it would just be fission products. Should they
15 be receptor-based? Should they be based on members of
16 the public, or site workers, specific workers, generic
17 workers, the environment, potential PAGs from the EPA,
18 and so forth? And economic consequences.

19 Okay, so please, if you have thoughts,
20 please submit them on to the NRC so that we can
21 evaluate these and have meaningful input.

22 And I'll just make one last comment. At
23 the present time, we do not have any specific
24 reprocessing plant designs or safety analyses that we
25 can look at.

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1 The staff has, however, done some internal
2 preliminary estimates, and we do think that there are
3 a number of accident sequences that will bump into
4 this category that we are calling very high
5 consequence events, which will require additional
6 focus and safety controls and more rigor in the
7 analyses.

8 So, we welcome anything from industry or
9 members of the public as to their thoughts on that
10 matter. If they have any calculations or analyses
11 they would wish to share with us, we would greatly
12 appreciate it.

13 Thank you very much.

14 MR. CAMERON: Okay. Thank you, Alex.

15 And this was a difficult area, and I think
16 you had a great discussion on it.

17 What I'm going to suggest is that we come
18 back at quarter to two. That's an hour and 15
19 minutes.

20 I think we're going to have plenty of time
21 for Marshall Kohen and his colleague, Steve Ward, on
22 the security and material control and accounting. I'd
23 like to start in with that.

24 I think we're pretty much finished with
25 this subject, but we'll have time after Marshall and

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1 Steve to revisit any of this.

2 Our other agenda items, we want to go
3 around the table before we leave to just get any last
4 impressions from all of you. And Jack Davis is our
5 senior official, NRC official, is going to close the
6 meeting for us.

7 And then for those of you who can stay
8 around, we're just going to have, you know, an
9 informal open house.

10 And as you all know, the NRC is not able
11 to provide any refreshments of any type, but someone
12 may buy beer, I don't know, down there.

13 (Laughter.)

14 But at any rate, let's come back at
15 quarter to two.

16 (Whereupon, at 12:30 p.m., the meeting was
17 recessed, to reconvene at 1:45 p.m.)

18 MR. CAMERON: Okay, everyone. Good
19 afternoon. Welcome back from lunch, and we're going
20 to get started with our final discussion topic, which
21 is material control and accounting and security, and
22 it's a pleasure that we have Marshall Kohen here,
23 who's going to do the presentation, and his colleague,
24 Steve Ward. They're from NRC's Office of Nuclear
25 Security and Incident response. Oh, you're not from

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1 there?

2 MR. WARD: No, I'm from NMSS.

3 MR. CAMERON: Another NMSS guy. But
4 Marshall is going to do the presentation, and then
5 we'll just open it up for discussion.

6 MR. KOHEN: Well, thank you. Good
7 afternoon. As Chip said, my name is Marshall Kohen.
8 I'm a security specialist in the NRC Office of Nuclear
9 Security and Incident Response. I'm going to talk to
10 you a little bit today about four gaps that have to do
11 with the Safeguards and security aspects of the
12 potential reprocessing rulemaking.

13 This should follow the same format that
14 other presentations did. So you'll see a consistent
15 format. First, talk a little bit about the gap
16 summaries and remind you what we're talking about in
17 terms of these four gaps. Gap 4 had to do with the
18 exclusion of reprocessing facilities from the Category
19 1 material control and accounting requirements in the
20 regulations.

21 Currently, there is an exemption in 10
22 C.F.R. 74.51 that excludes reprocessing facilities
23 from the Category 1 MC&A requirements, and as we all
24 know, I think, a reprocessing facility is likely to be
25 a Category 1 site, or require a Category 1 level of

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1 MC&A and physical protection.

2 Gap 8 discussed the risk-informing that
3 would need to be done on the Safeguards and security
4 requirements in NRC regulations. Currently, the
5 quantity-based categorization scheme in the existing
6 regulations, both in Part 73 and in 74, may not be
7 appropriate to address the different attributes and
8 risk levels of nuclear materials that are handled at a
9 reprocessing facility.

10 On Gap 17, this discussed what's called
11 Diversion Path Analysis. This type of analysis would
12 provide an effective detection and response program to
13 mitigate Safeguards vulnerabilities and security
14 system weaknesses. Safeguards requirements in the
15 event of a DPA and inclusion of a DPA would then be
16 more risk-informed.

17 Finally, Gap 18, there could be challenges
18 due to the nature of operations of a reprocessing
19 facility. With respect to a couple of items, pre-
20 defined limits on inventory different determinations
21 and inventory frequencies.

22 Now onto the proposed positions or
23 thoughts, at least, on how to address these gaps.
24 With respect to Gap 4, the Commission directed staff
25 to remove the exemption of the reprocessing facility

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1 from Category 1 MC&A requirements, as part of the
2 ongoing Part 74 rulemaking, and that was through the
3 SRM that you see on the screen.

4 The draft Part 74 rule is expected to be
5 released for public comment this December, and a
6 preliminary copy of this rule text is on
7 Regulations.gov. So you're welcome to take a look at
8 it at your leisure.

9 With respect to Gap 8, the Commission
10 approved the staff's development of a revised
11 categorization scheme, and it did so in SRM SECY 09-
12 0123. One of the caveats in the SRM was that the Part
13 73 rulemaking shouldn't focus on the categorization of
14 material that's associated with reprocessing.

15 What it said was as a separate effort, and
16 on a lower priority, there should be analysis done of
17 the material categorization approach for materials at
18 a potential reprocessing facility. Staff's currently
19 developing a technical regulatory basis to support the
20 rulemaking in that respect.

21 Similar to Gap 4, on Gap 17, the
22 Commission directed the staff to consider
23 incorporating Diversion Path Analysis into the
24 reprocessing regulatory framework, through the same
25 SRM. The staff planned to add a requirement to

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1 conduct Diversion Path Analysis to the MC&A
2 regulations for reprocessing.

3 Finally, in Gap 18, the staff is currently
4 considering changes to the inventory frequency, limits
5 on inventory difference, limits on error measurements
6 and other material accounting aspects regarding
7 materials at a reprocessing facility.

8 With respect to what we have received to
9 date from stakeholders as input on these four gaps, on
10 Gaps 4, 17 and 18, which are the material control and
11 accounting gaps, there's been, we assess that there
12 has been general agreement with the staff approaches
13 to do a couple of things: to make the reprocessing
14 facilities subject to Category 1 regulations; to
15 require a Diversion Path Analysis; and to adjust the
16 material accounting limits as appropriate.

17 Regarding Gap 18, we also assess that
18 there's been agreement with the staff approach to
19 revise the material categorization approach. In fact,
20 we received a letter from NEI in August of 2009,
21 advocating the inclusion of a material attractiveness
22 approach into this scheme.

23 We do note that there have been some
24 stakeholders who have stressed the importance of this
25 process in the treatment of mixed oxide fuel. With

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1 respect to integration of the gaps, on Gap 8, the
2 revision of the material categorization approach for
3 physical protection purposes will certainly drive a
4 decision on how that approach is used in the MC&A
5 world as well, since they're complimentary
6 disciplines.

7 For Gaps 4, 17 and 18, the removal of the
8 exemption for reprocessing facilities under the
9 current Category 1 rules will place reprocessing
10 facilities under Subpart E of Part 74. If the
11 Commission permits NRC to proceed or the staff to
12 proceed with rulemaking for reprocessing, the staff
13 will then add a new subpart to Part 74, that will be
14 similar to Subpart E, but will incorporate the changes
15 necessary to regulate MC&A at a reprocessing facility,
16 including resolutions to Gap 17 and 18.

17 Finally, any changes that would result
18 from Gap 8, as I said before, this is the other side
19 of the coin, would then be included in the MC&A
20 rulemaking, and help to close Gaps 4, 17 and 18. So
21 finally, we brought up a few questions that we thought
22 people might want to ask. Obviously, there will be,
23 we believe there will be more than this, but just for
24 food for thought.

25 If there are any problems that are created

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1 by development of the regulatory basis for risk-
2 informing Parts 73 and 74 separately from the
3 regulatory basis for potential rulemaking, and how
4 that would affect the licensing aspects.

5 What should a Diversion Path Analysis
6 include? Which documents should NRC staff consider in
7 developing the rule language and guidance for
8 conducting Diversion Path Analysis, and finally, what
9 specific challenges does the potential licensee
10 community foresee in meeting the material accounting
11 requirements for Category 1 facilities, including a
12 reprocessing facility?

13 So that concludes my remarks, and I think
14 -- do you want me to go back?

15 MR. CAMERON: I think maybe this is the
16 best way to organize the discussion, rather than just
17 going gap by gap on this. I just had one process
18 question for you, before we begin, Marshall, for
19 people who might be interested in commenting on the
20 proposed rule that's going to be out in December,
21 although what's said here by the panelists or the
22 audience is going to be very useful for you in moving
23 forward with this.

24 They won't be considered as formal
25 comments on the proposed rule, so that I guess that's

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1 a question. So that if people want to formally
2 comment, they should keep track of when the proposed
3 rule appears for comment. Is that correct?

4 MR. KOHEN: Yes, that's right, and with
5 respect to the Part 74 rulemaking, I'll let my
6 colleague, Mr. Ward, handle those particular comments.

7 MR. WARD: Actually, right now, as was
8 mentioned in the slides, the draft rule text, and
9 that's only the rule text; it doesn't include the reg
10 analysis or all the other documents that you're used
11 to seeing with the rule officially going out for
12 public comment. They call this a preliminary public
13 comment period.

14 It is currently on Regulations.gov, and
15 that comment period actually runs through June 30th.
16 So if anybody has -- if anybody wants to submit
17 comments on that draft text as it stands, we would
18 welcome those. Obviously the end of the month is
19 coming up very soon. But those comments would be
20 welcome, and of course, there will be a *Federal*
21 *Register* notice in December, when we expect the
22 official draft rule package to come out.

23 MR. CAMERON: So that there is a
24 preliminary comment period. I'm glad you pointed that
25 out, for everybody to know. Is there any magic to the

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1 sequence that we take these questions, and Kevin, did
2 you have a question?

3 (Off mic comment.)

4 MR. STRICKLAND: I just needed you to
5 repeat the document that's up for comment.

6 MR. WARD: What's on Regulations.gov is
7 what's called the preliminary draft rule text. So
8 it's the actual text of Part 74 and a few other
9 subparts or a few other parts that needing conforming
10 changes, but nothing else. There's no statements of
11 consideration or anything. It's just the text.

12 MR. STRICKLAND: Okay, Part 74.

13 MR. CAMERON: Great.

14 MR. STRICKLAND: As long as they have this
15 mic turned on, could you define material
16 attractiveness? I've never heard that term. I'm just
17 interesting. I usually ask about acronyms.

18 MR. KOHEN: Sure. I can give you a
19 general description of what we're talking about. Part
20 of the current material categorization scheme is that
21 it's a two-factor approach, for type and quantity. So
22 it's the type of material and the quantity that you
23 have at a facility.

24 What we're looking at in general terms is
25 looking at different aspects of the material than that

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1 forms, for example. So what we mean by attractiveness
2 is attractiveness of the material in a certain form
3 and in a certain quantity to the adversary, in taking
4 that material and doing something with it,
5 particularly creating an improvised nuclear device.
6 That's what we mean by attractiveness.

7 MR. CAMERON: So it's a broader look than
8 the traditional two-part look --

9 MR. KOHEN: That's correct.

10 MR. CAMERON: --the type of material,
11 okay.

12 MR. KOHEN: Correct.

13 MR. CAMERON: Any other questions before
14 we get into discussion? This is Tom Clements.

15 MR. CLEMENTS: Yes, Tom Clements. Just a
16 follow-up on that attractiveness. Could you give an
17 example of what you mean, say, plutonium oxide versus
18 fresh plutonium MOx, and what you think the
19 attractiveness might be, and if you could address, in
20 the case of the MOx, that if the material, if the fuel
21 was processed in some way, you could get the plutonium
22 back out, but you might not be able to build a, you
23 know, improvised device immediately if you got your
24 hands on it. It would require further steps.

25 MR. KOHEN: Okay. Let me answer the first

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1 part of the question first, and I'll use a different
2 example, because this is an example that we've used in
3 the past, particularly when talking with senior
4 managers.

5 The example that I like to use is 2 kg or
6 5 kgs of high enriched uranium in metal form is very
7 attractive, especially compared to that same quantity
8 of material dispersed throughout a rail car of dirt,
9 okay.

10 So if you think about what an adversary
11 could do with that quantity in a metal form, for
12 example, versus some of the stuff that we ship out to
13 Idaho for burial, which is in a different form, and
14 dispersed throughout a rail car of dirt. It's more
15 difficult for an adversary to capture a certain
16 quantity of that material to be able to use it.

17 So that's what we mean by attractiveness.
18 That's sort of a relative comparison of
19 attractiveness.

20 MR. CLEMENTS: Well, let me ask you
21 another, about another -- it's not a hypothetical.
22 Plutonium stored, contaminated plutonium, weapons
23 grade plutonium, stored, that can't be used because of
24 contaminants for a MOx plant, say it's in an urban
25 site.

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1 If that material is going to be disposed
2 of in -- as true waste in the Waste Isolation Pilot
3 Plant, and it were to be mixed into a disposal
4 container to be taken to WIPP, but it still hasn't
5 been denatured.

6 It's weapons grade plutonium, but it's in
7 a drum with some kind of mixture to disperse it, what
8 is the level of attractiveness under this approach, of
9 that material that's weapons grade material, which
10 would be disposed of without a radiation barrier in
11 WIPP?

12 MR. KOHEN: Right. Thanks for the
13 question. That's a very, actually very specific
14 question, and it has to do with a level of detail that
15 I'm not comfortable talking about at this point. One
16 of the things that's going on is we have a couple of
17 studies that are underway, and hopefully almost
18 completed, that we believe will inform not only the
19 rulemaking, but the development of guidance and
20 development of our technical basis.

21 And so those details are a little bit
22 preliminary for me to discuss, and so I think I would
23 like to leave it at that.

24 MR. CAMERON: Okay.

25 MR. YEAGER: I'm not familiar with that

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1 particular item, Tom. You know, the WIPP shipments
2 are coordinated through DOE, and through grants, there
3 are -- they are very secure. They're very -- you
4 know, currently, if I understand what you're saying,
5 these are shipments going to WIPP, right, with
6 plutonium?

7 MR. CLEMENTS: I'm not just talking about
8 WIPP waste. I'm talking about larger contaminated
9 weapons grade plutonium that can't go to the MOx
10 plant, but it wasn't really true waste.

11 MR. YEAGER: I thought yes, when you were
12 saying. Okay. I thought you were maybe speaking
13 about the WIPP shipments.

14 MR. CLEMENTS: Not the traditional true
15 waste.

16 MR. YEAGER: Okay, because those are
17 escorted by law enforcement, pretty much along the
18 entire corridor.

19 MR. CAMERON: Okay. Thanks, Mark. Jim.

20 MR. BRESEE: Yes. I suspect that at least
21 part of the input to the NRC's issues with regard to
22 attractiveness would come from some of the Safeguards
23 studies that are really NNSA-sponsored activities, and
24 most of the publications on the subject have come out
25 of Los Alamos. Is that -- am I correct in that?

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1 MR. KOHEN: Well certainly there's been
2 historical work done in this regard, and we do have a
3 current study that Los Alamos is doing for us, that's
4 going to be one of the major inputs to the rulemaking.

5 MR. BRESEE: There was, in answer to Tom's
6 question, there was -- there have been some open
7 publications on the subject, and I would refer you to
8 a paper at a global conference last year, that
9 discussed in some detail how one would determine the
10 so-called attractiveness of mixtures of materials.

11 Generally speaking, that's what you're
12 talking about, is some dilution of materials that have
13 weapons significance.

14 MR. CAMERON: Okay. Thank you, Jim. This
15 first bullet up there is what I would call a process
16 question, is that -- does anybody see any problems if
17 the NRC proceeds with 73 and 74 separately from the
18 reprocessing rulemaking? Rod.

19 MR. McCULLUM: The only way I would see
20 problems really come in terms of schedule, I think it
21 makes sense to do that. I think risk-informing Part
22 73 and 74, getting the right definition of
23 subcategories and the appropriate grading of
24 requirements across the categories and subcategories
25 is probably the key to making all of this work for

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1 reprocessing facilities.

2 And maybe this is more of a question. A
3 couple of areas where I see the schedule, one, I mean
4 you've got one rulemaking that's in process now to
5 remove the exemption, and then this will be a
6 subsequent rulemaking.

7 If you had, if you complete the first but
8 don't complete the second, then that does create a
9 problem, in that now you have declared it a Category 1
10 facility, but you haven't risk-informed the Category 1
11 requirements.

12 The other thing would be if the Part 73
13 and Part 74 rulemaking lags this rulemaking. Now we
14 heard yesterday, we're still hoping for 2015, but
15 there are apparently some budget issues. That might
16 slip. I don't want it to slip. We'll probably
17 comment on that.

18 But I think if NRC staff can assure us
19 that the schedule for the Part 73 and 74 rulemaking
20 will stay in sync with this rulemaking. By in sync, I
21 mean sufficiently ahead of it, it sounds like the
22 reasonable approach, I mean the right way to go.

23 MR. CAMERON: Okay. Whoops. Sven.

24 MR. BADER: I'll caveat this, that I'm
25 not expert in this field. But I guess from an AREVA

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1 position, we're kind of wondering, can you tell me
2 what the fundamental differences are between Part 73
3 and 74 and the IAEA regulations that the rest of the
4 international community follows?

5 MR. WARD: First off, Part 73 is the NRC's
6 regulations for physical protection, at both nuclear
7 power plants, fuel cycle facilities. Part 74 is
8 specific to material control and accounting.
9 Obviously, there's some synergy that exists. Many
10 material control features of the plant are physical
11 security features as well, and so they do work hand in
12 hand.

13 Now the next part of your question was
14 like the IAEA requirements, and there are two aspects
15 to that, and one is, you know, the IAEA does have
16 requirements for Safeguards that are implemented in
17 non-nuclear weapons states, and because the United
18 States is a weapons state, plants here are not
19 automatically required to meet those IAEA
20 requirements.

21 However, the United States has voluntarily
22 and through various treaties over the last 50 or so
23 years, committed ourselves as a government and by
24 default, some of our licensees, both NRC and DOE, to
25 adhere to some of the standards set forth by the IAEA.

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1 So the most likely effect for, and this is
2 just predicted; nobody knows how this would shake out.

3 The most likely effect would be there are regulations
4 in Part 75 that licensees have to adhere to,
5 concerning reporting to the IAEA, and through the U.S.
6 government.

7 The reprocessing facility would be
8 considered by an inter-agency group of the U.S.
9 government for potential inclusion on what is called
10 the eligible facilities list. If a reprocessing
11 facility is put on that list, then the IAEA, at their
12 discretion, may choose to implement Safeguards at that
13 facility. But that's a long process and there's a lot
14 of steps that would have to be taken to get to that
15 point.

16 MR. CAMERON: And before we go to Susan, I
17 think Marshall has something to add on that.

18 MR. KOHEN: Yes. I just wanted to follow
19 on. Steve sort of gave you the MC&A side of that
20 question that Sven asked, and let me talk a little bit
21 about the security aspect. Unlike the MC&A, what were
22 called requirements, there are really no security
23 requirements at the IAEA level and sort of on an
24 international level.

25 The IAEA puts out a guidance document.

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1 It's titled Info Circ 225, it's now in Revision 5.
2 That is, again, a guidance document. There are a
3 number of countries throughout the world that utilize
4 that document, and in fact many of them take the text
5 verbatim and put it into their national legislation.

6 The United States doesn't do that, but we
7 do attempt to, at our best, DOE particularly and NRC,
8 make sure that our regulations for physical protection
9 are as consistent with the guidance, the
10 recommendations in the Info Circ 225 as possible and
11 as appropriate within our legislative structure.

12 So for physical protection, there really
13 are no international requirements for security, simply
14 guidance.

15 MR. CAMERON: Sven.

16 MR. BADER: I just want to follow up. So
17 does that mean if somebody chose to design their
18 facility here in the United States to IAEA
19 regulations, instead of NRC regulations, we'd meet the
20 NRC regulations? Or are the NRC regulations more
21 restrictive than the IAEA regulations?

22 MR. WARD: Well first off, from MC&A's
23 standpoint, NRC regulations are more restrictive.
24 The IAEA Safeguards, which are requirements in other
25 countries except here, are requirements. Just like

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1 for physical security, however, when it comes to MC&A,
2 the IAEA only has a guidance document. Similar to
3 what Marshall said, some countries have adapted the
4 IAEA guidance directly into their national
5 legislation.

6 But in the United States, our MC&A
7 requirements are much stricter than if you were to
8 just copy the IAEA, MC&A or IAEA Safeguards
9 requirements.

10 MR. CAMERON: And one more follow-up.

11 MR. BADER: So we're a weapons state that
12 applies IAEA, more restrictive requirements than non-
13 weapons states across the globe. Is that the way I
14 understand that?

15 MR. WARD: Yes. There's a fundamental
16 difference between MC&A and IAEA Safeguards. IAEA
17 Safeguards are directed to prevent the proliferation
18 of nuclear weapons. So one, the IAEA is concerned
19 about a much greater adversary, the state, the country
20 potentially being, trying to divert this material, not
21 just someone at the facility.

22 The IAEA is also largely concerned about
23 identifying diversion within a certain period of time
24 after it has occurred. MC&A, in conjunction with
25 physical security measures, are much more geared

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1 towards preventing that theft or diversion from
2 occurring in the first place.

3 MR. CAMERON: Susan.

4 MS. CORBETT: I hope I'm not being
5 redundant here, because I have to admit that sometimes
6 I feel like y'all are speaking a different language
7 than me, because I'm not a technical expert. But I
8 think this is the correct place to ask a question
9 about insider threats.

10 Jim and I were kind of talking about this,
11 because one of the concerns of the public is that
12 weapons grade material be stolen and used to create
13 bomb material or whatever.

14 There's a really excellent movie that came
15 out two years ago called "Countdown to Zero." It's
16 more about nuclear weapons. But in the context of
17 that movie, they documented a number of cases, mostly
18 in Russia, but where materials have been stolen a gram
19 at a time from probably uranium enrichment, but other
20 reprocessing places as well.

21 So it's a concern of the public that,
22 especially in the world that we live in today, that we
23 make sure that weapons grade material isn't stolen and
24 used for horrible purposes. So I think one of the
25 things, as a member of the public that I would like to

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1 see in this, is that this analysis should include an
2 identification of the materials that could be stolen.

3 I mean I think the public would like to
4 know what is being produced here that could be, that
5 is weapons-usable. It may not be weapons grade, but
6 it certainly could be weapons-usable. I'd like to
7 know what that is, to identify those, how it could be
8 stolen, you know. There's conjecture about how it
9 could be stolen, what kind of access is there to these
10 materials, who gets to access them.

11 Is it done; is it just a single person?
12 Is there always a team of people when they come and
13 access this material? Are there background checks and
14 you know, when you first talk about building this
15 first facility, it's very possible that it could be
16 within the confines of a DOE site.

17 But if we're going to build 20 of these,
18 then it's very likely they won't. So you're talking
19 about just having one and, you know, the DOE's
20 Savannah River site is very secure. You can't just
21 sneak in there. But if these are located around the
22 country in regional places, it could be a lot less
23 secure.

24 So the standards that apply to a site
25 located at a DOE plant might be different than what

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1 needs to be looked at in an independent-standing site.

2 So how are you going to address these, the insider
3 threat of diverted material? I think the public would
4 like to see that, an analysis of that.

5 MR. CAMERON: Marshall, Steve, can you
6 talk about the NRC approach to questions like Susan's,
7 and I would assume that the type of information that
8 you develop on that is going to fall into the category
9 of -- that won't be able to be shared with the public?
10 I'm asking a question on that.

11 But I think first of all, you know, what
12 do you do? What's the approach to developing that
13 type of information, and do indeed we develop the
14 information that addresses Susan's questions?

15 MR. WARD: Well first off, just our
16 existing MC&A and physical security regulations for
17 all facilities do address measures to preventing the
18 insider threat at all types of facilities. That's
19 something we look at often, and you know, we have and
20 are currently in our proposed Part 74 rule that we're
21 working on.

22 Features such as requiring two person rule
23 or other overchecks, to ensure that one person cannot
24 act alone and divert or misuse material without either
25 having another person present or some other means of

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1 checking and verifying that no inappropriate actions
2 were taken.

3 So that's a big part of our existing
4 regulations, and the regulations are stricter for
5 Category 1 fuel cycle facilities in that regard.

6 The next part of your question, as Chip
7 alluded to, a lot of the security and MC&A information
8 for facilities is classified, to a certain extent, and
9 we do our best to provide information, particularly
10 in the form of guidance documents wherever possible,
11 that can be publicly released.

12 If we go forward with this rule for a
13 Diversion Path Analysis, a big component of that will
14 be developing a guidance document for the licensee
15 community, to know what exactly we intend for them to
16 do.

17 I can't tell you right now for sure that
18 that guidance document will be totally publicly
19 available. But we will certainly try our best to at
20 least have the guidance document, of what we're asking
21 the licensees for, to be publicly available. However,
22 the actual analysis from the licensees is most likely
23 going to have to be protected as some form of
24 sensitive information. I'll let Marshall continue
25 that.

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1 MR. KOHEN: Okay. I guess I would echo
2 some of the thoughts on the security side. There's a
3 similar situation. One of the things that I want to
4 make sure everybody understands, and remind everybody,
5 is obviously NRC has an obligation to conduct a public
6 process through our rulemaking, and we certainly
7 intend, as part of the Part 73 rulemaking, to do that
8 as much as we possibly can.

9 As Steve said, there will be aspects of
10 the analysis that we do, that we will use to come up
11 with what will eventually be in the regulations, which
12 will be publicly available obviously, that we will not
13 be able to disclose. One thing I want to point out is
14 the major aspect of the Part 73 rulemaking -- well,
15 there are two aspects actually.

16 One is to infuse, incorporate the orders
17 that we've had to put in place on a case-by-case basis
18 over the last ten years, to make them part of the
19 regulations per se. So we want to get away from
20 regulation by exemption. So we're going to take those
21 orders where possible, and put them into regulation.

22 They will be part of those orders that are
23 sensitive information of all different types, and
24 they'll have to stay sensitive. That's just the
25 nature of the information. I would also remind people

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1 that we have a graded approach already to security and
2 to MC&A. That is the categorization approach.

3 So you have Categories 1, 2 and 3, and
4 they are set up based on the attractiveness or the
5 desires of the adversary to acquire that type and
6 quantity of material to use in an improvised nuclear
7 device. What we're attempting to do, by revising the
8 categorization approach, is add some more
9 stratification, and make a little bit more appropriate
10 the physical protection to different types and forms
11 of that material.

12 So I would say again, we are certainly
13 part of the public approach, and during the Part 73
14 rulemaking, we will make as much of the analysis and
15 the design of the structure of the categorization
16 approach, and the physical protection measures that we
17 assign to those categories and attractiveness levels,
18 as public as possible, and to the extent that we can
19 do that, we certainly will.

20 As you probably know, another aspect of
21 both MC&A and security is at least at the nuclear
22 power plants and at the Category 1 facilities, is a
23 design basis threat.

24 Obviously, the details of those documents
25 are sensitive, and we can't discuss the details of

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1 those. But those are the documents that we use, at
2 least for the Category 1 facilities and for the
3 nuclear power plants, to help us design the security
4 systems and the features that go into those systems.

5 So there is a rationale. There is an
6 analysis that goes behind the design of those security
7 systems, and it has to do with the category of
8 material that is in those facilities.

9 MR. CAMERON: Thanks Marshall. Susan, and
10 then Tom. Susan?

11 MS. CORBETT: I just want some
12 clarification. So what exactly will be classified?
13 You can't tell me what's classified, because it won't
14 be classified. But materials, certain materials will
15 be classified? Actions and procedures or processes
16 are classified? Is that what you're relating to?

17 MR. KOHEN: I can't give you specific
18 types of information that I know will be classified.
19 I mean there are things that are already protected at
20 classification levels and sensitivity levels that will
21 continue to be that way.

22 As I say, we have a study going on, and
23 one of the things that that study is considering is a
24 lot of different types and forms of as many types and
25 forms and quantities of special nuclear material that

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1 licensees of the NRC currently hold and are
2 anticipated to hold.

3 So we're looking at the entire spectrum of
4 materials, to give ourselves the best look at what is
5 a relative set of attractivenesses among those forms
6 and types. Whether those materials, whether we would
7 be able to disclose what those materials and forms and
8 types would be, I can't say at this point.

9 MS. CORBETT: So basically you wouldn't be
10 able to tell us what's dangerous or how you're
11 protecting us from them?

12 MR. KOHEN: Well, maybe not to a very,
13 very specific level of detail. But quite honestly,
14 it's already in the categorization approach, and when
15 we develop a new table, what we envision is that types
16 and forms will be in that table, and that will be in
17 the regulation.

18 MR. WARD: Let me just add to that. NRC,
19 the U.S. government, in fact, as a whole, requires
20 certain kinds of information to be classified, and we
21 don't -- when we generate a document, we look. Does
22 it contain information that is sensitive?

23 We don't just automatically assume that a
24 certain type of document is going to be classified a
25 certain way. We look at what it actually contains to

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1 determine the appropriate level of classification.

2 MR. CAMERON: Tom.

3 MR. CLEMENTS: Well, thank you Chip. I'd
4 like to engage with a little bit of a back and forth,
5 along the same lines, if we could. I have three
6 points I'd like to discuss with you, and this first
7 one definitely might not have to do with risk-
8 informing Parts 73 and 74, but it's just a quick point
9 in the area.

10 As you know, Information Circular 549
11 requires of IAEAs is voluntary reporting for plutonium
12 and I guess highly enriched uranium. Do you foresee
13 that the utilities or whoever builds the plant,
14 operates the plant, would essentially be expected to
15 do this voluntary reporting, or would you anticipate
16 that there would be a requirement on a U.S. government
17 level, that the reporting be mandatory for the amounts
18 of material, of plutonium, separated and in process
19 and in spent fuel in storage at the facility?

20 MR. WARD: Off the top of my head, I'm not
21 100 percent sure what Info Circ 549 is.

22 MR. CLEMENTS: It's just a voluntary
23 reporting for most countries that have a commercial
24 weapons grade plutonium stockpile. Some countries do
25 not participate like Sweden and maybe the Netherlands.

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1 MR. WARD: Well we already, in Part 74
2 even, licensees are required to submit reports on
3 enriched uranium and plutonium to the Nuclear
4 Materials Management and Safeguards System, the NMSS
5 database, and the NMSS database subsequently generates
6 reports on behalf of the U.S. government concerning
7 these materials and quantities and imports and exports
8 and all sorts of other stuff, that are subsequently
9 submitted to the IAEA.

10 Additionally, Part 75 requires licensees
11 to comply with terms of the Comprehensive Safeguards
12 Agreement and additional protocol reporting
13 requirements. So I'll have to look. It's quite
14 possible that data that NMSS already sends to the IAEA
15 might very well cover this Info Circ 549.

16 MR. CLEMENTS: But that's voluntary, and I
17 think there perhaps should be something in the
18 regulations to require reporting.

19 MR. WARD: Well, reporting to NMSS is
20 already required in Part 7413, 7413 and 7415.

21 MR. CLEMENTS: Okay. Two more points. As
22 you know, I believe it was December last year, Francis
23 Slakey from the American Physical Society, filed a
24 petition with the NRC, that nuclear proliferation
25 assessments be a part of all licensing processes, and

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1 he was mostly directing this to the situation with the
2 development of the laser enrichment facility by GE-
3 Hitachi, I think, in Wilmington.

4 But it raises a question on reprocessing
5 technologies that might be deployed in the United
6 States. I don't know. I haven't seen any movement on
7 a response to that petition, but where would you see
8 that in Parts 73 or 74 or elsewhere, if there were
9 some requirement.

10 I think it should be done, because it's
11 rather stunning that there's been no nuclear
12 proliferation assessment required, in the case of this
13 new laser enrichment technology. But where would you
14 see it emerging, if there were to be some requirement
15 to do such a proliferation assessment?

16 MR. WARD: The issue of whether or not the
17 NRC would start conducting or requiring proliferation
18 assessments, that's a policy issue that the Commission
19 itself is going to have to weigh in on, and I can't
20 really speculate on how their -- what their views are
21 going to be.

22 Obviously, if they were to direct the
23 staff to require it, that we do it or require the
24 licensee do it, however that might be, then we would
25 have to put that in the regulations somewhere, to make

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1 that required. But it really depends on how the
2 Commission makes their decision.

3 MR. CLEMENTS: I understand, and one more
4 point on the attractiveness issue. I just want to
5 point out a report done by Brookhaven from July of
6 2009. I just happen to have a cover here,
7 "Proliferation Risk Reduction Study of Alternative
8 Spent Fuel Processing." I can give this to you if you
9 don't have it.

10 They looked at COEX, UREX and
11 pyroprocessing, to determine the relevant
12 proliferation risks of each of those. I think the
13 Rokkasho plant, if it ever were to operate after 2-1/2
14 years of trying to start up, that's a question,
15 separates a mixed plutonium uranium stream.

16 I don't think there's any difference
17 between the pure plutonium stream and a stream that
18 has uranium in it. This report from Brookhaven says
19 that this evaluation found only a modest improvement
20 in reducing proliferation risks over existing PUREX
21 technologies, and these modest improvements apply
22 primarily for non-state actors.

23 So I'm curious to know, if you are, in
24 dealing with this attractiveness issue, looking at
25 treating separated materials, uranium and plutonium

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1 from a COEX facility, as different from pure plutonium
2 from a PUREX-type technology. Thank you.

3 MR. WARD: Well first off, again right
4 now, we don't look at things from a proliferation
5 perspective, unless the Commission, in response to
6 that petition you were talking about a moment ago,
7 directs us to. However, that said, we do look very
8 thoroughly at, you know, the types and forms of
9 materials, part of this attractiveness study.

10 So that that would certainly be something
11 that we'd look at, you know, how different mixtures
12 may be more or less attractive to an adversary.

13 MR. KOHEN: Yes, that's right, and that's
14 what I was going to say. Let me add one thing to
15 that, which is you mentioned different forms of
16 plutonium coming from different technologies. One of
17 the things that we're trying to do in Part 73, which
18 is right now focused more on facilities than it is on
19 material, is refocus the discussion onto the actual
20 material itself, and the attractiveness of that
21 material to the adversary.

22 So I guess I would say that plutonium, in
23 its different forms, is what we're looking at. It
24 really doesn't make a whole lot of difference where it
25 is, what type of technology it comes from, or what

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1 facility it's at. And so I would -- sort of that
2 would be my addition, is that we're really focusing on
3 the types, forms and quantities of material, not
4 necessarily where they're located or where they're
5 stored.

6 MR. CAMERON: Let's go to Jim and then
7 we'll go to Susan.

8 MR. BRESEE: I would just suggest, as part
9 of the some of the activities associated with this
10 rulemaking you're currently discussing, that some of
11 the more advanced materials control and accountability
12 work of the Department of Energy might be of some
13 interest to you.

14 It is aimed very clearly, and I'm talking
15 about the Office of Nuclear Energy, it's aimed very
16 clearly at improved Safeguards for future reprocessing
17 or recycling, reprocessing and recycle facilities in
18 the U.S. It is targeted toward that type of
19 installation, and it does not take the position that
20 somehow, this attractiveness issue eliminates the
21 concern or reduces the concern about the need for
22 Safeguards.

23 I want to emphasize that there's been too
24 much -- I think there's been a lot of wasted effort in
25 trying to compare and contrast UREX and COEX and PUREX

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1 and various other processes, including the
2 electrochemical, and from the standpoint of does it
3 reduce significantly issues associated with Safeguards
4 and diversion.

5 I think there has to be a different
6 approach. There are activities that we hope will
7 improve that area, and they're openly published. But
8 I would just urge that there be good, close
9 communications in that area.

10 MR. CAMERON: Thanks, Jim, and let's go to
11 Susan, and then I have a question for you all.

12 MS. CORBETT: I don't know exactly how to
13 explain this, but I've read that reprocessing
14 worldwide has created a large inventory stockpiled,
15 because you can't -- they've never been able to feed
16 all of the reprocessed materials back into the MOx
17 program.

18 So you've got these stockpiles, I think it
19 was the IAEA website that I tallied up the amounts all
20 over the world. It's like 250 metric tons of weapons-
21 usable material. So my question is, is there going to
22 be some consideration in this about if we start
23 getting behind in the MOx processes of fabrication,
24 and we start getting these larger and larger amounts
25 of this weapons-usable material, are we going to stop

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1 until we use that, or are we just going to keep --

2 Are we going to get into a situation where
3 we've got these larger and larger quantities, which
4 logic would dictate the more you have of something,
5 the more attractive it becomes, and perhaps it is to
6 get ahold of. So is there some going to be an
7 equation about not allowing this stuff to pile up?

8 MR. WARD: Most NRC licensees, as part of
9 their license, will have what are called possession
10 limits, a maximum amount of different forms of both
11 special nuclear material and other nuclear materials
12 that they are allowed to possess. I imagine that, you
13 know, the license for a reprocessing facility would
14 likewise include possession limits.

15 That would address that concern. I mean
16 existing licensees have those today, and if they can't
17 ship off material in time, then they have to tell
18 people not to send them more material until they can
19 get that backlog worked through. I anticipate that we
20 would require the same of the reprocessing facility.

21 (Off mic comment.)

22 MR. WARD: Possession limits.

23 (Off mic comment.)

24 MR. WIDMAYER: Possession limits is part
25 of Part 20. It's kind of fundamental to getting a

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1 license from the NRC. Every licensee has a possession
2 limit. That's fundamental in Part 20, as opposed to -
3 -

4 MS. CORBETT: But will the public know
5 what those possession limits are, or is that
6 classified?

7 MR. WARD: Most, the vast majority of any
8 facility's license is public, and off the top of my
9 head, I do not know if the possession limits are
10 public. Any of the other NRC staff here might know
11 that off the top of their head. But the vast majority
12 of the license is public, but the few exceptions,
13 usually in the MC&A and security realm, those pipes
14 are classified.

15 MR. WIDMAYER: I think the possession
16 limit, for example, plutonium, would be something that
17 would be easy for you to find out. That's public
18 information. What form it's in, maybe that's
19 something that you wouldn't be able to know what that
20 is.

21 MS. CORBETT: I mean because we're talking
22 about something totally new here for us really. This
23 is not like stuff we've done before. So we are
24 looking at a new animal here in reprocessing, so --

25 MR. WIDMAYER: Yes.

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1 MS. CORBETT: Okay.

2 MR. CAMERON: Okay, thank you. Rod.

3 MR. McCULLUM: Yes. If I could speak to
4 that specific question from an industry standpoint, I
5 mean we always consider NRC requirements, you know,
6 the minimum of what we do, and we always seek to
7 exceed NRC requirements, and security is no different
8 than safety.

9 In fact, you know, while it's true, your
10 possession licenses would restrict the amount of
11 plutonium in various forms you could have, there's an
12 industry aspect to this. I hesitate to use the word
13 marketing, but that's kind of the way it's playing out
14 right now, where the various technologies that are
15 vying for support to develop reprocessing facilities,
16 are looking to market their -- the fact that they will
17 not separate out pure plutonium.

18 You know, there's variance on the PUREX
19 process that does separate out plutonium, you know,
20 the NUEXs, the COEXs, and it's very likely that the
21 industry will seek, on its own accords, to develop a
22 process which, you know, keeps the plutonium with the
23 neptunium or the uranium or whatever, so that we don't
24 accumulate pure plutonium reserves at all in these
25 facilities.

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1 That's just, in terms of making the
2 technology variable to multiple communities such as
3 yours that are concerned, that's something that
4 industry's going to do for reasons other than
5 regulation.

6 So I would hope that the first applicant,
7 whenever that occurs, would be able to say we're not
8 relying on a possession license to limit our
9 plutonium, but in fact we don't separate out pure
10 plutonium.

11 MR. CAMERON: Okay. I just want to make
12 sure that there wasn't some important implications for
13 the rulemaking, from what Jim Bresee just talked
14 about, and I don't really understand what he was
15 saying. But he was saying that an awful lot of -- not
16 because it was Jim, but because it was me, okay.

17 There was an awful lot of time wasted on
18 trying to remember what you said, and you had some
19 recommendations for Marshall and Steve. Do you know
20 what he was talking about, and is that something that
21 you guys are engaged in?

22 MR. WARD: We work very closely with DOE
23 and the labs. I believe we have a very good working
24 relationship, and I think Jim's point was well-taken,
25 which is DOE has done a lot of research into material

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1 attractiveness, that we can take advantage of, rather
2 than reinventing the wheel. I know from an MC&A
3 standpoint, we certainly do that. We talk to our
4 counterparts in DOE and try to use them as resources
5 as often as we can.

6 MR. KOHEN: Yes, and I would say from the
7 security aspect, we work, again, very closely, not
8 only with the DOE and NNSA security organizations, but
9 the weapons community as well.

10 I think, without prejudicing anything, I
11 think what you'll eventually see when we revise our
12 categorization table, is that it is going to look
13 somewhat, somewhat like DOE's categorization table
14 that it has been using for 20 or 25 years, that it is
15 in the process of potentially revising itself. But
16 there are small tweaks that they're doing to it.

17 So we're not doing anything that's
18 radically different from what DOE has done over 25
19 years, and in fact, we have a requirement from the
20 Commission to keep in constant contact with the
21 Department of Energy in doing these things, and we've
22 been doing it all along. So that's not a worry from
23 our side.

24 MR. CAMERON: Okay, thank you. Just to
25 close the loop on Tom's mention of the petition, is

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1 there anything that could be said about the status of
2 that? Is that still under review, I guess?

3 MR. WARD: I unfortunately don't know
4 anything about the status of it.

5 MR. CAMERON: Okay. We talked about the
6 first bullet, and Susan sort of started us on the path
7 of the Diversion Path issues. Is there more to be
8 said by anybody on the second and third bullets, with
9 a Diversion Path Analysis, what should it include, and
10 which documents should NRC consider? Maybe that's a
11 point well-taken from that recent discussion about
12 what Jim was suggesting. Anything that anybody wants
13 to add or question on -- Mark.

14 MR. YEAGER: With regard to the third
15 bullet, which documents should NRC staff consider to
16 develop the rule language and guidance? As you
17 already probably know, agreement states a few years
18 back had to implement increased controls.

19 So we kind of went from a regulatory
20 agency that deals with health and safety, to one that
21 had to deal with security, and that involved not
22 weapons grade material but basically material that
23 could be diverted to dirty bombs and dispersal
24 devices.

25 So we're kind of familiar with the

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1 Diversion Path Analysis, because part of our
2 evaluation of these facilities, and the quantities,
3 were defined by similar to what you brought up
4 Marshall, how much of this material, special nuclear
5 material in the proper forum is attractive.

6 That's the same thing with us. How much
7 do we need to be worried about, and there's certain
8 licensees that have that. The primary example we have
9 is cesium chloride, which is a very desirable isotope
10 and the form is volatile. So it's something that's
11 desirable.

12 So what we had to do with our licensees
13 was go through probably a very similar process, in
14 that we had to evaluate the licensee's security, and
15 then based on guidance from NRC, require them to put
16 levels of security in place, to prevent the diversion,
17 and also interdiction and try to foil the adversary,
18 the potential adversary.

19 And what we do is also proprietary. You
20 know, if you FOIA'd that, we would not be allowed to
21 go into great detail with that with you, because we
22 don't want to compromise what our licensees are doing
23 to protect it.

24 But my recommendation to you, with regard
25 to the question of what documents, since again, this

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1 is a proposal for a commercial facility, not a
2 facility on DOE property that has inherent security
3 already in place, a commercial facility, I would, you
4 know, ask that you -- because they exist, the
5 processes that you implemented for us regarding
6 increased controls and the requirement to, for a
7 potential applicant to interact with local law
8 enforcement.

9 So if diversion is successful, what plan
10 is in place to successfully interdict that successful
11 removal from your jurisdiction. Again, it's kind of
12 like a release, but in a different way to our side of
13 the fence. We're concerned about interaction between
14 NRC and the applicant with local and state law
15 enforcement, to ensure that we have a plan in place to
16 successfully foil the potential adversary.

17 MR. CAMERON: Good comment. Thank you.
18 Thank you, Mark. Anybody else on the second or third
19 bullet? Oh, I'm sorry. Susan.

20 MS. CORBETT: I was going to add to that,
21 you might want to have some kind of special training
22 for local police around facilities like that,
23 interaction with special training with that too.

24 MR. YEAGER: Essentially they do that

25 MS. CORBETT: They do that already?

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1 (Off mic comment.)

2 MS. CORBETT: Have the Barnwell police
3 been trained?

4 MR. YEAGER: Yes, they are.

5 MS. CORBETT: Okay, good. That's good.

6 MR. YEAGER: There is a relationship, but
7 yes. There is -- if local law enforcement does become
8 part of that increased control plan, we are in touch
9 with them ourselves to provide technical reachback,
10 and the licensee is also there, because they have
11 expertise for technical reachback.

12 We currently already have working
13 relationships through Homeland Security and DNDO with
14 the state transport police. We're technical reachback
15 for them and SLED. So there's already programs in
16 place that we're involved with, that we periodically
17 go out and work with law enforcement, so they can
18 recognize things.

19 MR. CAMERON: Okay. How about the fourth
20 bullet? Specific challenges, potential licensee
21 community, in terms of MC&A for Cat 1, of which
22 reprocessing will be one. Rod.

23 MR. McCULLUM: I just want to reiterate, I
24 actually addressed our concern on the fourth bullet
25 when I talked about the first bullet, that the only

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1 challenge would be is if you don't complete the risk-
2 informing Part 73 and 74 and subcategorization in a
3 timely manner, in front of the reprocessing rule, and
4 you've recategorized as Category 1.

5 You create a sticking point from somebody
6 trying to develop a reprocessing facility ahead of
7 that. But as long as all of this is sequenced in a
8 logical manner, we don't see any.

9 MR. CAMERON: Susan.

10 MS. CORBETT: I think as a potential
11 member of the community, if something does go missing,
12 I would like to know. So is that in the plan?

13 MR. CAMERON: How does that work?

14 MR. KOHEN: I guess, let me ask a question
15 back to you. What do you mean by "missing"?

16 (Laughter.)

17 MS. CORBETT: If it gets diverted, or
18 material unaccounted for, yes.

19 MR. KOHEN: Two different things.

20 MS. CORBETT: Okay. I'm sorry. I'm
21 sitting here, okay.

22 MR. KOHEN: That's why I asked the
23 question. I'm not sure it changes the answer. There
24 are -- I'm not sure I can answer you specifically, in
25 terms of, you know, how quickly the public would find

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1 out.

2 Obviously, there are a series of measures
3 that would have to be taken by the licensee, by other
4 organizations to recapture the material, figure out
5 and do nuclear forensics, for example, and where other
6 federal level organizations are involved, even if they
7 weren't, and they would be, there would be a time
8 period that there would be an investigation.

9 There would be recapture, there would be
10 investigation, and those things, just like in any
11 other type of investigation, and that would not be
12 something that would be released.

13 But I would say we don't have any
14 evidence, and we have no instances of diversion in
15 this country. So right. So we haven't --

16 MS. CORBETT: We have to plan for the
17 unprobable.

18 MR. KOHEN: Absolutely we have plans.
19 That's not to say that we don't have plans.
20 Certainly, we haven't had to exercise them, luckily
21 enough.

22 MS. CORBETT: That doesn't mean we
23 shouldn't have a plan.

24 MR. KOHEN: Oh absolutely, and there are.
25 There are contingency plans for every scenario that

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1 we have analyzed, in determining our physical
2 protection structure. So there certainly are
3 contingencies.

4 MS. CORBETT: Well, that was just my
5 question. As a member of the community, would I be
6 alerted? Is there somebody lose in the community
7 with, you know, a shoe box full of some diverted
8 weapons material?

9 I mean as a member of the community, I
10 think it might -- I might want to know that and will
11 that be part of the plan? You don't have to tell me
12 now. I just think it should be considered.

13 MR. CAMERON: Tell her where the shoe box
14 is.

15 (Simultaneous speaking.)

16 MR. CLEMENTS: There was no -- there was
17 no diversion of uranium to Israel. Is that NRC's
18 position?

19 MR. WIDMAYER: We would tell you that it's
20 been diverted in a shoe box, but we can't describe the
21 shoe box to you, and we can't tell you where it is and
22 --

23 MR. CAMERON: Okay. Is there anything
24 else in this MC&A security arena, in terms of
25 reprocessing facilities, that anybody wants to discuss

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1 at this point? We have the experts here. Anything at
2 all, and anything that Marshall or Steve want to say,
3 in summary on this topic? Derek.

4 MR. WIDMAYER: Yes, and I don't know how
5 this fits into the big picture. It was just something
6 that jumped out at me that's not here. Maybe the
7 staff didn't find any gaps, and that's one reason why
8 it's not here or anyway, it's the cybersecurity biz.

9 You know, we're talking about threats to
10 the facility, and this is one of the ones that is
11 somewhat of a new thing. But we're dealing a lot with
12 it at the committee level with nuclear power plants,
13 and that's, you know, wreaking havoc on a facility by
14 hacking into their control systems, as opposed to
15 actually doing it with some sort of physical threat.

16 MR. CAMERON: Go to Marshall on that

17 MR. KOHEN: Right. That's a good
18 question. As you know, as many of you probably know,
19 there is a rule now in place since 73.55, 73.56 for
20 cybersecurity for nuclear power plants. We are
21 currently in the process of discussing, within the
22 NRC, how to approach cybersecurity when it comes to
23 fuel cycle facilities.

24 I won't say it was easy to put the rule in
25 place for nuclear power plants, but one aspect is that

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1 power plants are somewhat similar in their structure,
2 in their systems and components, and we don't find
3 that in the fuel cycle. There's a wide variety of
4 facilities, a wide variety of materials, a wide
5 variety of systems and components, both for safety and
6 security.

7 And so it's going to take a little bit of
8 thought to figure out how to develop regulations and
9 then guidance in the area of cybersecurity. Rest
10 assured, we understand the threat and we understand
11 that it is ever-changing, and please understand that
12 we are actively engaged in the analysis of how to
13 develop regulations and guidance on cyber for fuel
14 cycle facilities, of which a reprocessing facility
15 would be one.

16 MR. McCULLUM: So to clarify, any such
17 rulemaking in cybersecurity affecting a reprocessing
18 facility would not occur in this rulemaking; it would
19 occur over in 73-74 space?

20 MR. KOHEN: I can't say for sure, but I
21 would gather that that's correct.

22 MR. CAMERON: That's the same model that's
23 followed for reactors.

24 MR. McCULLUM: That sounds like the right
25 place for it. That's why I wanted to make sure.

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1 MR. CAMERON: Okay. Derek, anything else
2 on cyber?

3 And Susan?

4 (Off mic comment.)

5 MR. CAMERON: Okay. Yes, Bret. Bret
6 Leslie.

7 DR. LESLIE: Bret Leslie, NRC staff. It's
8 kind of a clarification question, and either Marshall
9 or Rod will be able to address this. Rod, you talked
10 a couple of times about scheduling things.

11 My recollection is for the risk-informing
12 or the categorization, the Commission in their SRM
13 said that categorization for reprocessing should not
14 be on the same time line as the rest of the rule. Am
15 I misinterpreting, and how does that reflect the time
16 line that Rod seems to be thinking he needs, or wants
17 to be developed?

18 MR. KOHEN: That is, you've characterized
19 it properly. You've characterized the language in the
20 SRM properly. The Commission did say that we were not
21 to consider categorization of material for the
22 purposes of reprocessing on the same schedule as the
23 Part 73 rulemaking.

24 Later on in the SRM, there was a
25 discussion of, to the effect of until and unless there

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1 is a serious proposal for a specific reprocessing
2 technology. So that seemed to us to be one of the
3 delimiters, as to when we would do that. Having said
4 that, the materials and the types and forms that would
5 be found at a reprocessing facility are likely to be
6 found at other facilities.

7 As I said, one of our focuses in the Part
8 73 rulemaking is to be more on material types, and
9 less on types of facilities.

10 MR. CAMERON: Does that take care of it?
11 Let's continue out here. We're going to go to Ed, and
12 if you could just introduce yourself.

13 MR. LAHODA: Ed Lahoda from Westinghouse
14 Electric. I guess the main concern I would have is
15 not the PU or the U and stuff like that. It's the
16 waste and the liquids and everything that are in the
17 plant, being taken from the plant.

18 Now what are your plans to control that,
19 because as Mr. Yeager pointed out, it's the dirty
20 bombs and stuff like that could be, doesn't take any
21 big technology to do anything with, and it can be just
22 as destructive and economically hurtful?

23 MR. CAMERON: Yes. How about those types
24 of materials that we don't normally, that are not up
25 on the big horizon? Steve.

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1 MR. WARD: Well first off, under our
2 current regulations, at least for MC&A, there is no
3 real distinguishing feature of waste. If it's at the
4 site and it contains special nuclear material, it is
5 subject to the site's MC&A program. There are cases,
6 there are cases where sites have asked for exemptions
7 due to certain controls and features of the waste.

8 But there's nothing in regulation right
9 now that separates it. However, the waste, the forms
10 of waste would really fall into the discussion of
11 material attractiveness, and so I'll let Marshall.

12 MR. KOHEN: Okay. So I guess another
13 thing to point out is that the material categorization
14 scheme currently, and is intended to continue to be,
15 focused on special nuclear material, and that's
16 defined in the regulations. So if it falls into that
17 category of material, then it would be covered by the
18 material categorization scheme.

19 I guess one other thing I would say, and
20 maybe it's sort of an ancillary point, one of the
21 things that has come down in the last several years is
22 the Department of Homeland Security put out a draft
23 final rules on security of chemicals, and that is
24 something that we are actively working on, how to
25 address.

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1 There was an exception in the rule for NRC
2 facilities, but we recognize that there are some
3 chemicals that are inherent at our licensees that are
4 dangerous, and that we need to protect in some way.

5 We're currently working with the
6 Department of Homeland Security and eventually we'll
7 be putting up a Commission paper, talking to the --
8 giving the Commission some information that we, some
9 analysis that we've done on what we think should be
10 done with those chemicals.

11 So we are considering other things, other
12 than special nuclear material. But within the Part 73
13 rulemaking, that would be -- it would be relatively
14 minimal.

15 MR. CAMERON: Okay. Good to know about
16 the Homeland Security chemical thing. Jim?

17 MR. BRESEE: Yes. Just this particular
18 comment. It probably has wider application, but it's
19 specifically applicable to the issue of diversion
20 detection. In my judgment, the most likely commercial
21 facility involving reprocessing in the future, if
22 there ever is one in this country, will be intimately
23 and directly connected with fuel fabrication.

24 So that the combined facility is really
25 what would be subject to this type of diversion

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1 control. Certainly, the present situation in France,
2 where plutonium, separated plutonium, is produced at
3 the north end of the country, and used at the south
4 end for that purpose, would be the opposite extreme.

5 I'm talking about increasingly integrated
6 systems of the future. If that concept is at least in
7 the back of the minds of those who are developing the
8 types of regulatory controls, I think it would be of
9 some value, because it definitely addresses that one
10 most obvious problem associated with current practice.

11 MR. CAMERON: Thank you, Jim. Alex, you
12 had something you wanted to add.

13 MR. SCHMUCKMEYER: Thank you very much.
14 My name is Fred Schmuckmeyer. I'm with the public.
15 I was listening to the conversation about ten minutes
16 ago. There was a reference to the Brookhaven report
17 and there was a little bit of discussion about how
18 potential companies that are interested in
19 reprocessing, were coming up with different blends
20 that they thought would be more, how do I say it, less
21 attractive, more proliferation-resistant.

22 I was just going to ask the panel, I guess
23 it's more industry and NRC, but maybe Tom has some
24 thoughts on this as well, is there any point of -- are
25 there any considerations to find a point where, as you

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1 go from 100 percent plutonium to 100 percent uranium,
2 where there's a point where there's enough of a change
3 in either the isotopic mixture, or in say physical
4 form, co-precipitated versus powders, or fuel rods
5 versus synthoid (ph) pallets, whatever, integrated
6 versus unintegrated facilities, what have you, where
7 some sort of threshold is crossed, where the material
8 is now less attractive from a proliferation
9 perspective.

10 MR. CAMERON: Thank you, sir. Anybody
11 want to take that? Sven?

12 MR. BADER: Alex, you're probably aware
13 of the Bathke report, that Dr. Charles Bathke at Los
14 Alamos put together, with what Jim referred to
15 earlier. Yes, AREVA has looked at that report and the
16 amount of uranium that you have to add to the
17 plutonium, I think it was 80 percent had to be
18 uranium. That was not doable in a PUREX-like process
19 that we had envisioned.

20 So you know, we definitely considered it,
21 and I mean, you know, the COEX process is a process
22 that's AREVA's pursuing to commercialize. We believe
23 that there's really no proliferation-resistant
24 technology available right now.

25 MR. CAMERON: And Jim is shaking his head

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1 affirmatively on that. What I was going to suggest,
2 we're going to continue to go out to anybody in the
3 audience who wants to talk.

4 But since we did get sort of a late start,
5 I'm not sure it makes sense to break and then come
6 back, as opposed to continuing with the program, which
7 has last comments around the table when we're done
8 with the audience. Then Jack is going to have
9 something to say to close the meeting out for us.
10 Does anybody have a problem with just pushing through?

11 MR. McCULLUM: Yes. There's a number of
12 people who have to leave at four to catch flights,
13 including myself. So if we could just press onward,
14 and get through that.

15 MR. CAMERON: Okay, all right. Audience,
16 let's go, and I think Brandon, you know. Okay.

17 DR. HAYES: Thank you. Could you please
18 clarify for me why, since the government has decided
19 to go down the path of spent nuclear fuel
20 reprocessing, that the decision has been made to
21 commercialize the process, since we have so many
22 different facilities, federal facilities and
23 personnel, and equipment with extensive backgrounds in
24 nuclear engineering, nuclear chemistry, nuclear
25 physics?

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1 An example would be the H Canyon at SRS,
2 and understanding there would have to be modifications
3 and upgrading to enter into this kind of processing.
4 But I mean the facility is there, and it does have
5 potential.

6 Secondly, since there's about 60,000
7 metric tons of spent nuclear fuel in our inventory
8 now, and that's growing by some couple of thousand
9 tons a year, what do you estimate will be the time
10 requirement for utilizing all of that inventory, and
11 will there be additional waste that needs reprocessing
12 in this overall process picture, as the spent nuclear
13 fuel is reprocessed in these commercial facilities?

14 MR. CAMERON: I don't know who wants to --
15 Rod wants to address that, and Dr. Hayes made a
16 statement at the beginning about -- of her comment
17 about the government's decision to go down the road on
18 reprocessing. I don't know if that is -- someone
19 might want to address that, and -- go ahead, Rod.

20 MR. McCULLUM: Yes, and the gentleman from
21 DOE can correct me if I'm wrong, but I'll start out by
22 saying I don't think any such decision has been made.

23 This is being driven by an interest in commercial
24 reprocessing on the part of the industry I represent,
25 and it's more on the federal level and the policy

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1 level, the Blue Ribbon Commission is also looking at
2 it, and the Blue Ribbon Commission agrees that before
3 anybody, be it industry or government, can make
4 decisions about whether or not to move forward with
5 reprocessing, they need to know what the rules are.

6 I think that's going to come out as a
7 pretty solid Blue Ribbon Commission recommendation. I
8 think that satisfies -- continuing on that path
9 satisfies industry's need to know what the rules are,
10 so we can decide whether or not the entities and
11 industry that are interested in reprocessing can make
12 a business case for doing so.

13 All of this does not exclude the
14 possibility that existing government facilities might
15 have a role to play in this. They might very well.
16 It's just you'd have to see what entity came forward,
17 who they partnered with, where their funding came from
18 and, you know, all that. So but that's all stuff that
19 can't come together until we know what the rules are.

20 So yes, there's no decision to go down a
21 path of any sort, and certainly no decision to go down
22 a path that would exclude the use of the resources at
23 a place like Savannah River.

24 MR. CAMERON: And anything on some of the
25 specific questions that Dr. Hayes had? Anybody have

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1 anything to offer on that? Sven.

2 MR. BADER: I'll try to add a little bit.

3 I'm not going to make a commercial pitch here, but
4 you know, one of the reasons the commercial industry
5 such as AREVA is interested in doing this is, you
6 know, there's this perception that DOE is involved
7 with the plutonium bomb cycle.

8 The commercial industry is not involved in
9 that cycle. So if we separate the two and regulate
10 one by a public institution such as the NRC, there's
11 definitely more opportunity for public input.

12 In addition, AREVA believes we have a
13 better product to offer to what existing facilities
14 are out there, you know, that we -- when I say better,
15 we have the experience in La Hague doing some
16 commercial basis, and we believe that that experience
17 has helped us provide Rokkasho with a path forward,
18 and potential other clients.

19 MR. CAMERON: Do you want to -- go ahead.

20 DR. HAYES: I think that one of the issues
21 that might come up in the commercialization of the
22 process versus federal control is that under the
23 federal control, there has been certain commitments
24 made for transparency. If you move this process into
25 the commercialization arena, then proprietary issues

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1 may come up, and the same kind of transparency for the
2 public would become muddied.

3 I think that's a big public concern.
4 Could you address that, and also could somebody
5 address this thing of, this question of how long it
6 would take to process all this inventory we have?

7 MR. McCULLUM: Yes, I forgot to -- I'm
8 sorry I didn't. I'll address the last question first.

9 I had forgot to do that when I was addressing your
10 other questions. I mean there is not an intent at
11 this point to reprocess all of the used nuclear fuel
12 that exists out there. Nobody's proposing that.
13 There's 65,000 metric tons. Some of that will go to
14 direct disposal.

15 Certainly anybody who designs a
16 reprocessing facility is going to design it and have
17 targeted an optimal age range for the fuel. Since
18 whatever age range they pick, whether they want to go
19 after old fuel for certain reasons or new fuel for
20 certain different reasons, you know, it won't make
21 much sense for them to go out and reprocess all kinds
22 of fuel.

23 So there will be used nuclear fuel that
24 will go directly to a repository, no matter how
25 successful the commercial ventures for reprocessing

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1 are. What was the other question again?

2 MR. WIDMAYER: How long will it take?

3 MR. McCULLUM: Well, it will take -- that
4 answer is infinite, because we will not endeavor to
5 reprocess all of it.

6 MR. CAMERON: The other issue was what are
7 the implications of, that come from proprietary
8 information?

9 MR. McCULLUM: Oh yes. No, the answer to
10 that is exactly the process we're going through right
11 now. While various competing technologies may have
12 proprietary things, when it goes down, you know, to
13 applying for a license, in the very public NRC
14 process, they will have to demonstrate, in a very
15 public way, exactly what they do to protect public
16 health and safety.

17 We will not be able, and I don't think
18 we've ever been able to in any NRC licensing process,
19 hide behind the proprietary moniker, to not reveal
20 what we do to make our facilities safe. So I think
21 the answer to assuring that there's the same
22 transparency in a commercial project as there would be
23 in a government project, and I kind of laugh, because
24 I'm not equating DOE with transparency for some
25 reason, but --

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1 (Laughter.)

2 MR. McCULLUM: To make sure you have the
3 optimal amount of transparency, the answer is
4 participate and do exactly what you're doing today.
5 Participate in the NRC process. Make sure the rule
6 addresses all the things that you need to know, to
7 assure that the safety of your community is protected,
8 and that's how it will be done.

9 MR. CAMERON: And we're going to go to
10 Brett Klukan. Did I get that?

11 MR. KLUKAN: You did get it right.

12 MR. CAMERON: Oh my God.

13 MR. KLUKAN: This goes to the proprietary
14 comment. We often deal with requests for -- when I
15 say proprietary, I mean commercial secrets or trade
16 information. We get requests from the public, who
17 desire to participate in the adjudicatory process for
18 this.

19 I've never heard of an instance in which
20 we denied the public a request, assuming those members
21 of the public are willing to sign a non-disclosure
22 agreement. I mean that's a separate issue from
23 security or information withheld because of security
24 concerns.

25 But the NRC has a pretty transparent

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1 process, and by transparent I mean well-documented
2 process for how the public would gain access to
3 proprietary information in the context of an
4 adjudicatory proceeding, and also through the FOIA
5 process as well.

6 MR. CAMERON: Thank you, Brett, and
7 Suzanne, do you have anything? Okay. Yes.

8 MR. MURRAY: Hi. It's Alex Murray again.
9 I picked up the past couple of days, there have been
10 some questions about quantities and time that it might
11 take if you were to reprocess a fuel and so forth. I
12 wanted just to give a very quick perspective, first,
13 on how much spent fuel there is.

14 There are approximately 65,000 tons. That
15 sounds like a lot of spent fuel. However, if there
16 was a swimming pool the size of a football field, I
17 know it's not football season yet, but it's a good
18 metaphor, okay, that swimming pool could accommodate
19 all of that spent fuel in that football field size in
20 wet storage.

21 If it were done as dry cast storage, which
22 is what the power plants are transitioning to, it
23 would take somewhere between the equivalent of 25 and
24 30 football fields to accommodate those 65,000 tons or
25 so, round numbers. So in terms of quantities and

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1 size, it's not that much.

2 Now the other part, which I want to make
3 clear, is get some perspectives on processing rates
4 and times, if reprocessing were to occur. Right now,
5 there are four, and I'll use the term, modern
6 reprocessing plants in the world, okay. The two at La
7 Hague, one in England and one in Japan.

8 They're basically built in an 800 to 1,000
9 ton module, okay. That's just how it worked out. I
10 don't think it was by any sort of pre-planning or pre-
11 thought. It just occurred that way. Given that the
12 U.S. utilities generate between 2,200 and 2,500 tons
13 of spent fuel a year, you would need three of those
14 plants just to break even with the current generation
15 of spent fuel, if you were to reprocess all of it.

16 If you have a backlog of 65,000 tons, you
17 would need 25 years, something like that, 30 years to
18 work through that backlog, with three additional
19 plants of that size, just to put it in perspective.
20 That's why industry and the Department of Energy might
21 decide hey, you don't do all of it or you do part of
22 it or something. But it's up to them. We're just the
23 regulated. Thank you.

24 MR. CAMERON: Thank you. Okay, thanks
25 Alex for that information. I think we're ready to go

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1 to see if there's final comments around the table on
2 the entire meeting, on any part of the meeting, and
3 then we're going to hear from Jack Davis. Mark, you
4 mind if we start with you down here? Okay.

5 MR. YEAGER: I really don't have any
6 specific comments. I just would like to thank Chip
7 for inviting South Carolina to participate. I've
8 certainly learned a lot, and I'll take a lot back to
9 work and share with our management, and also be giving
10 the report to the board at CRCPB. So it was a very
11 enlightening experience, and I appreciate it.

12 MR. CAMERON: Great, and Kevin, we're just
13 going around to see if -- give people a chance to make
14 any comments they have about the process or put
15 anything on the table on any particular issue,
16 whatever. So go ahead.

17 MR. STRICKLAND: Well, that was a
18 certainly enlightening experiment, to hear everybody's
19 perspective on this, and I don't really have anything
20 additional to add on it. But I'd like to thank
21 everybody for their comments and their time.

22 MR. CAMERON: And Rod?

23 MR. McCULLUM: Yes. I just want to start
24 by thanking, you know, the NRC and Chip for putting
25 this on. This is the right way to do rulemaking.

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1 This has been extremely helpful for us. The document
2 provided and the discussion we've had have been an
3 excellent window into where NRC is in its thought
4 processes, and it provided an excellent opportunity
5 for us to provide comments.

6 This is the third in a series of
7 workshops. We look forward to moving to the next
8 step. We think that NRC has a good path forward.
9 We're pleased that you've embraced the Part 7X
10 philosophy, and recognize that this regulation falls
11 into between reactors and fuel cycle facilities.
12 We're pleased that NRC has embraced the risk-informed
13 performance based technology neutral approach.

14 The plan to address gaps appears to be the
15 right, you're looking at the right gaps, and you are
16 addressing them. There are obviously some things we
17 disagree on. We've had a chance to state those. We
18 will be following up this meeting with a written
19 comment letter by July 7th.

20 The most significant of those is the
21 safety analysis methodology questions. Of course, We
22 have our letter out there with our white paper on ISA,
23 which we believe is the preferred method. The reason
24 that's the most important is because that really
25 drives a lot of the other things. You know, this

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1 regulation, to be risk-informed and performance-based,
2 it needs to be driven by the safety analysis. So we
3 have to get that piece right.

4 I think you heard both from the industry
5 and other stakeholders that a one-step-only approach
6 is not preferred. Very important that this be a
7 holistic rule, that you not have interfaces between
8 regulations inside the facility, and the facility be
9 broadly defined.

10 I think as Jim just mentioned, you know,
11 you put the fuel fabrication with the separation. You
12 would not want to have Part 72 facilities inside Part
13 7X facilities. So making sure you have a holistic
14 regulation. There are also things that I think we
15 agree in principle on, but more work is needed to be
16 done, which can be done further down in the rulemaking
17 process, details on GDC and the specific Price
18 Anderson framework are just a couple of examples.

19 The final thing I'll say is because this
20 is a critical path to decision-making, the Blue Ribbon
21 Commission agrees with this, that whatever decisions
22 and whenever the United States makes those decisions
23 about reprocessing, recycling plutonium recovery,
24 whatever you want to call it, those decisions cannot
25 be made without the rule being in place.

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1 So until NRC completes this rulemaking,
2 the country is forever in a stalemate on the issue of
3 should we do this or shouldn't we, and for that
4 reason, we would hope that NRC would hold to its 2015
5 schedule. We're concerned to hear that funding may
6 cause that slip now to 2017. So we're encouraging the
7 effort to continue on the path it's on, and we'd like
8 for it to continue on the pace that it's on as well.

9 MR. CAMERON: Thank you, Rod. I'm going
10 to keep going with the external participants, and
11 we'll go to see if any of the NRC staff, before we
12 hear from Jack, have anything final to add on this,
13 and that the staff did a great job, throughout the two
14 days, on their presentations.

15 Let's go to Sven and I'm counting Derek in
16 as external, external to the staff. Sven?

17 MR. BADER: I appreciate that. I think,
18 you know, what Rod stated for industry applies to me
19 as well. You have the schedules are one thing. I
20 think that it's the most significant impact to us, to
21 make an economic assessment of moving forward on this,
22 you know, as well as keeping a holistic approach,
23 being able to license the facility for the multiple
24 different facilities that we might have there, such as
25 spent fuel pool or dry storage area, a set-down area,

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1 a high level waste storage and so forth.

2 I think if you look at it in an integrated
3 process, I think what we're trying to achieve in the
4 United States is moving back to an integrated process,
5 looking at the whole cycle, the whole fuel cycle. We
6 believe, AREVA believes that this is one of the main
7 features of that integrated cycle.

8 I would like to caveat a little bit of
9 this one-step, two-step. Yes, AREVA's definitely
10 interested in a one-step approach. I'm not sure that
11 the first facility would fall under that category.
12 But definitely if it were future facilities, that
13 would be something that we're going to take advantage
14 of.

15 We'd like to then believe that we do have
16 -- well, we don't believe. We actually do have
17 operating facilities around the world. We're involved
18 in, you know, we run a facility La Hague, through
19 design. We're trying to help Sellafield. We have
20 helped Rokkasho, and yes, certainly Rokkasho's had
21 some problem, but I think they're going to push
22 through as well. If you hadn't heard, it was a
23 vitrification (ph) problem.

24 Once they've pushed through that,
25 hopefully their fuel fabrication facility will get

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1 built. Of course, everything at Fukushima has turned
2 that all, a little bit in doubt. Otherwise, you know,
3 again, I appreciate the invitation and I hope next
4 time maybe we'll get a little more leeway, a little
5 more advance warning.

6 MR. CAMERON: Okay.

7 MR. BADER: Thanks.

8 MR. CAMERON: Thank you. Derek.

9 MR. WIDMAYER: Thanks. I guess sort of
10 repeating fundamentals of my initial caveats. I don't
11 represent the Committee and I was asked to come,
12 representing the staff. In that regard, I did ask for
13 some help in preparation for the meeting, and myself
14 and the other staff person who reviewed the materials,
15 we thought that the gap analysis was well done, and
16 that it asked the right questions.

17 We think that the staff did a good job in
18 putting that together, and that that was a good first,
19 fundamental step in, you know, doing this proposed
20 rulemaking, getting to the part where you do actual
21 rulemaking. Then the second thing was that from the
22 Committee's standpoint, to echo two things that were
23 brought up at a meeting.

24 One was that I think it definitely would
25 be in support of a two-step process for licensing, at

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1 least for the initial facility, whatever it is, that
2 we're talking about. Then was the safety analysis
3 question. The Committee has been on record for a
4 while, and remains on record, that it would like to
5 see some sort of PRA-type analysis that helps you
6 prioritize your inspection process in particular.

7 So I think, as I reported before, the
8 hybrid approach that's being discussed, and the gap
9 analysis, I think, is workable, you know. They have
10 to see how it plays out.

11 In that regard, I would suggest that
12 coming to the Committee, the earlier, the better, as
13 far as whatever approach you were going to take in
14 explaining along the way to the Committee members,
15 particularly in trying to get agreement of those
16 particular members who are very focused on PRA.

17 MR. CAMERON: Thank you. Thank you,
18 Derek, and Jim.

19 MR. BRESEE: Thanks for the opportunity to
20 participate. I was privileged to be involved in the
21 first of these three meetings, and I must say, I was
22 very impressed with the progress that has been made,
23 and I look forward to any additional help that the
24 fuel cycle research program can provide in future
25 activities involved with this rulemaking process.

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1 Thanks also to a very well-organized
2 meeting and all the work that went into the two days
3 that we've had here.

4 MR. CAMERON: Thank you, and Tom, let's go
5 to you.

6 MR. CLEMENTS: This is Tom Clements with
7 Friends of the Earth. I hesitated to participate in
8 this panel, first not knowing if I had anything to
9 contribute, and for some other reasons. But I'm glad
10 I did. I personally learned some things, and
11 appreciated the interaction with everyone here, and
12 thanks to you, Chip, and the staff.

13 I do think that this exercise is an
14 academic exercise, rather than one that's going to
15 lead to reprocessing plants being constructed. So I
16 see no need to put this development of the regulations
17 on a fast track, and don't see the need for making
18 sure that there's a larger budget to do this.

19 As we look around the world, with the
20 reprocessing plants that Alex mentioned and some
21 others, I think it's quite instructive to look at the
22 British situation, where the Thorp plant and the
23 Sellafield MOx plant have been really utter disasters.
24 They've not performed anywhere near planning for them.
25 No plutonium has been reused. No uranium has been

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1 reused that's been separated.

2 The Russian facility, RT1, no plutonium
3 has been reused. After all these years and maybe 35
4 metrics tons were accumulated, no reprocessed uranium
5 has been reused. Rokkasho is in some trouble, and we
6 have the West Valley experience here in the United
7 States and Savannah River site.

8 There really, the MOx program is showing
9 that there's great hesitancy in the United States to
10 use MOx in light water reactors. Other reactors don't
11 exist. The reprocessing technologies are up in the
12 air. So I think a slow pace towards developing
13 regulations is certainly called for, and I would
14 certainly support that.

15 I've been watching this from afar, but
16 it's good to be a little bit more up close, and I'll
17 continue to monitor it here from South Carolina,
18 because we are concerned that we may be a focus of
19 location of a reprocessing plant. So from a public
20 interest perspective and public perspective, I will be
21 discussing this with more people around here as things
22 proceed. But I appreciate the opportunity to be here
23 today. Thank you.

24 MR. CAMERON: Thank you, Tom, and Susan?

25 MS. CORBETT: Thank you, and I really

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1 appreciate being invited to participate in this. As a
2 lay person, I have learned a tremendous amount, and I
3 appreciate your tolerance of my sometimes maybe stupid
4 questions. But I think it's always good to have a lay
5 person from the community at the table, to ask
6 questions that the public may want to know.

7 Like Tom and Mary, I had some reservations
8 about this, because I feel like I'm kind of
9 constructing the tent for the camel to stick his nose
10 in. But I guess if there's going to be a tent, I
11 would want to be a part of putting it up, so I can
12 keep an eye on that camel.

13 Because we are very suspicious of moving
14 towards a plutonium economy. We have Sierra Club,
15 we're talking about Sierra Club. We have never felt
16 that we want to make plutonium the energy coin of the
17 realm, and we're very concerned about that. We're
18 very concerned about the costs of reprocessing.

19 Worldwide, it's just an enormous cost, and
20 we don't know in this economy how that would get
21 funded. We're concerned about creating more waste,
22 even though as it's supposed to be reducing it.
23 Actually, we know for our experiences at Savannah
24 River site, that there's a tremendous legacy of waste
25 that require an enormous amount of effort to clean up

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1 and deal with.

2 We're concerned about proliferation risks,
3 and I'm afraid in my lifetime or in my children's
4 lifetime or my grandchildren, we're going to see the
5 repercussions of stockpiled weapons, usable materials
6 somewhere in the world. Hopefully not here, but who
7 knows?

8 We think the better solution is to go to
9 hardened on site storage and get busy finding a
10 geologic repository based on good science and not on
11 politics. It's obviously going to have to more than
12 one. We think if we're going to go forward with
13 nuclear power, that's the only way. The once through
14 is the only way to do that.

15 But thank you all. I've really enjoyed
16 meeting all of you, and I appreciate the opportunity
17 to be here.

18 MR. CAMERON: Thank you, Susan, and does
19 anybody on the NRC staff want to offer something.
20 Let's find that out, and then we'll see if there's any
21 last public statements, and then we're going to have
22 Jack come up. Bret Leslie.

23 DR. LESLIE: Bret Leslie, NRC staff. I
24 said right before lunch that there were a couple of
25 things that I had wanted to ask, when we were talking

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1 about safety and that discussion. Basically, it
2 concerns Gap 5. We're touching around the edges of
3 it, and if you read the summary, it doesn't -- I don't
4 think we touched on it well enough.

5 Reactor side, all licensees have a
6 regulatory limit, dose limit. Reactor side has a
7 safety goal policy. NMSS and Waste Arena has
8 quantitative health guidelines that are captured in
9 the risk-informed decision-making document for
10 materials and waste, and I don't think it's tied
11 directly on our website for reprocessing, but we'll
12 get it up there.

13 But that discussion in there, in terms of
14 criteria, it's about the lower side. So I think part
15 of the discussion that we didn't -- talking about
16 ALARA and driving down, that was about accident
17 sequences. When do you -- what's the bottom?

18 So I guess for a little, I would suggest
19 people go back and read that after you go look at the
20 risk-informed decision-making document, because we've
21 been told to consider these as we go forward, and that
22 maybe didn't come out well enough in our slides. But
23 I did want to let everyone know about that. Thanks.

24 MR. CAMERON: Thanks, Bret, for that
25 reminder on that. Let's go to Yawar.

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1 MR. FARAZ: Yes. I found this meeting to
2 be very, very helpful, to myself, I think. We got
3 some very good input from the stakeholders. At least
4 compared to the last two workshops, I think this was a
5 lot more productive. I'm happy to hear that NEI will
6 be submitting its written comments on our summary
7 document that we've put out, and what we've discussed
8 in this meeting.

9 I would strongly encourage the other
10 stakeholders to also submit their input, and base
11 their input, you know, primarily on the summary
12 document that we've put out. You know, go through it
13 and see if there's anything in there that you would
14 like to add, or some things in there that don't make
15 sense to you.

16 I would really very strongly recommend
17 that you do that. We've used this meeting to try and
18 get as much as we can, and I don't think we were
19 diligent enough to cover all areas. We may not have
20 been. So I would very, strongly encourage you to go
21 back and look at the summary document and go through
22 it very carefully, and then provide any other feedback
23 that you think is needed.

24 MR. CAMERON: Okay, thanks Yawar, and I
25 would just thank all of the members of the public who

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1 came and listened, and also offered comments during
2 the meeting. So thank you very much. Jack, I think
3 we'll turn it over to you, and the table, podium. All
4 right.

5 MR. DAVIS: Well, I wanted to thank all of
6 the panel participants, as well as the members of the
7 audience, for their active participation in the
8 discussions over the last two days. I think it's been
9 extremely useful to me and certainly to the NRC staff,
10 as you heard a few of them have already commented to
11 you.

12 Taking over leadership of this activity
13 about a year ago, I thought by now I pretty well
14 understood the issues at hand. But it's always
15 interesting to me that every time I come to another
16 public meeting, I either look at something with a
17 different nuance, or I look at it from a different
18 perspective.

19 I can't tell you how important those
20 different perspectives are to producing a very robust
21 rule that's protective of public health and safety and
22 the environment. You've heard us say that we've held
23 three public meetings over the last year in this
24 particular area, one in D.C., one out west, and one
25 here.

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1 I know a few times it was mentioned that
2 well, we picked this area, because we think that
3 there's going to be a reprocessing facility here.
4 That's not the case. We picked this area because we
5 knew that this was a very knowledgeable nuclear
6 community, that could give us very valuable input to
7 reprocessing.

8 They understand these types of issues.
9 They understand waste management, and we could get a
10 much better diverse view on how to do this rule, if
11 and when the Commission decides to do so. That said,
12 I do owe the Commission a recommendation for
13 rulemaking this September.

14 If they choose to go ahead and go forward
15 with a recommendation that says yes, we would pursue a
16 rulemaking, they'll be additional ample opportunities
17 for the public and for other panel members as yourself
18 to participate in help shaping that rule, so that it
19 is protective of the public.

20 I, at least, let me say it that way, I
21 heard very strong interest in holding additional
22 specific meetings on general design criteria and
23 technical specifications. I heard about NRC working
24 with EPA and working with DOE in a very open manner to
25 resolve some of these complex technical issues, and

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1 we'll take that back.

2 Finally, I think I'd be remiss if I didn't
3 say that I also heard the significant emotional
4 response to this particular topic. That wasn't lost
5 on me. I think it helps to personalize the whole
6 subject area, that this is an important safety thing
7 that we're doing. It's not just us as a regulator,
8 right?

9 It's the licensee. It's the industry, the
10 regulator, the state regulators, the other public
11 interest groups. I mean after all, at the end of the
12 day, who's the public that we're protecting? Us,
13 right. Our mothers, our fathers, our sisters, our
14 brothers, our friends.

15 We shouldn't lose sight of that. We need
16 to do this as best as we possibly can. As you said,
17 if we're going to do it, then we ought to do it in a
18 very safe manner. I'd like to also extend my thanks
19 to Chip as the facilitator.

20 (Applause.)

21 MR. DAVIS: I think -- absolutely. I
22 think everyone recognizes that facilitation, there's
23 an art to it, and every time I've been in a meeting
24 where Chip has facilitated, it's like a masterpiece,
25 and I'm being honest.

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1 MR. CAMERON: That beer is going to taste
2 good tonight.

3 (Laughter.)

4 MR. DAVIS: I'll buy the first couple of
5 rounds. Then also my thanks to Miriam as well. As
6 you're probably all aware, a huge amount of planning
7 goes into putting together one of these remote
8 meetings.

9 Miriam has done that, you know, hands-off,
10 if you will. I mean she's worked behind the scenes
11 very extensively to bring the right people to the
12 table, get the meeting location and so on. It's a
13 lot of effort, and I really thank you for your
14 professionalism.

15 (Applause.)

16 MR. DAVIS: Last, I would just say that
17 we're going to hold an open house shortly after this
18 meeting, and I'll be available to talk with anyone, as
19 well as other members of the NRC staff and the Center
20 staff. Thank you.

21 (Whereupon, at 3:42 p.m., the meeting was
22 adjourned.)

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