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NUCLEAR REGULATORY COMMISSION

Title: Rulemaking to Reduce the Likelihood of
Funding Shortfalls for Decommissioning
Under the License Termination Rule

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING

RULEMAKING TO REDUCE THE LIKELIHOOD OF FUNDING
SHORTFALLS FOR DECOMMISSIONING UNDER THE LICENSE
TERMINATION RULE

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Wednesday, January 10, 2006

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The meeting came to order at 9:00 a.m. in the
Residence Inn Bethesda Downtown, 7335 Wisconsin Ave,
Bethesda, MD. Lance Rakovan, Facilitator, presiding.

PRESENT:

- LANCE RAKOVAN NRC
- ANDREW PERSINKO NRC
- TOM FREDRICHS NRC
- KEVIN O'SULLIVAN NRC
- JIM SHEPHERD NRC
- STEVE ORTH NRC
- ERIC BOELDT PENN STATE UNIVERSITY
- SUE LANGHORST WASHINGTON UNIVERSITY
- JOHN ERNST TRTR
- STEVE REESE TRTR
- RANDALL CHARBENEAU TRTR

1 PRESENT: (CONT.)

2 STEVE BOLLINGER SAVANNAH RIVER NATIONAL LAB

3 CRAIG KINNE WESTINGHOUSE

4 SCOTT MORIE NUCLEAR FUEL SERVICES

5 CHARLIE HOLMAN AREVA

6 RALPH ANDERSEN NEI

7 ROY BROWN CORAR

8 DEWADE PITTMAN SOUTHERN NUCLEAR

9 BOB MAIERS PADEP

10 ADAM LEVIN EXELON

11 JENNIFER WHEELER Nuclear fuel services

12 SCOTT MURRAY GENERAL ELECTRIC

13 SEAN O'KELLY UNIVERSITY OF TEXAS, AUSTIN

14 THOMAS CONLEY KANSAS DEPARTMENT OF HEALTH AND

15 THE ENVIRONMENT

16 PHIL EGIDI COLORADO DEPARTMENT OF PUBLIC

17 HEALTH AND ENVIRONMENT

18 PAUL CLOUD US ARMY JEFFERSON PROVING

19 GROUND

20 SARAH FIELDS SIERRA CLUB

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C-O-N-T-E-N-T-S

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

(9:04 a.m.)

MR. RAKOVAN: Good morning.

I have to say that I am amazed at how well behaved this group is already. I mean we didn't have to call and ask everyone to take their seats, and everyone is quiet waiting to discuss. I don't know, I've got to say, so far this meeting is one of my favorites ever.

I am Lance Rakovan. I am a communications assistant at the Nuclear Regulatory Commission. And I am going to be facilitating today's meeting.

Since you are here, I assume that you know that the topic of today's meeting is Rulemaking to Reduce the Likelihood of Funding Shortfalls for Decommissioning Under the License Termination Rule.

Just like to start things out, welcome you, give you an overview of what to expect for today, go over a couple of ground rules, and basically just kind of get things started.

First of all, just to go over the purpose of the meeting, we are here essentially to listen to you today. We are working on some potential rulemaking, and we want to get your inputs.

I've talked with the representatives from

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1 the Nuclear Regulatory Commission and basically told
2 them, hey, we're here just to answer questions, to
3 clarify things. Other than that, let's just sit and
4 let's listen.

5 So again, we're here to listen to you.
6 We've got a number of topics to discuss today, and
7 hopefully everyone has got an agenda, and a set of
8 handouts that were on the table at the front. If you
9 haven't got that, you might want to go out there and
10 get it at some point during the meeting, because it is
11 going to definitely help you follow on with what is
12 going to happen.

13 Essentially what we are going to do is
14 we're going to start out each topic by giving a little
15 bit of background, just a few bullets kind of to
16 orient things, and then we are going to have a few
17 specific questions that we are going to kind of throw
18 out there just to begin discussions.

19 There's a number of participants seated at
20 the table, as you can tell. There are a lot of people
21 in the audience. So I'm going to ask that everyone
22 try to keep your comments concise if possible. We
23 have a lot of ground to cover today, so if you can say
24 it in five words, please don't use 50. And again,
25 depending on how things go, I'm going to try to keep

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1 things flexible. If it looks like we are making good
2 progress in something, might let it go a little
3 further.

4 But again, we've got a lot of ground to
5 cover, so if you could be as concise as possible, that
6 would help us out.

7 If you don't get your full say so to
8 speak, and you have something in writing you would
9 like to submit, either give it to myself, or give it
10 to one of the gentlemen at the NRC, and we'll make
11 sure that's included as part of this meeting.

12 In terms of the discussions, we do have a
13 transcriber here today. So it's very important that
14 we have only one person speak at a time. We have
15 several levels of participation here today, and I'll
16 go over some groundrules of how we'd like that to go.
17 But before I got onto that, what I'd like to do is
18 just kind of have everybody introduce themselves,
19 specifically at the table, and then we'll go to the
20 phone as well.

21 So Drew if you want to start things out,
22 just hit the little button to speak. I've been told
23 that we can only have four of the mikes active at one
24 time, so if you are not speaking, please keep your
25 mind off.

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1 So Drew, do you want to kick things off?

2 MR. PERSINKO: Yes, my name is Drew
3 Persinko, I'm branch chief, special projects branch,
4 division of uranium recovery and licensing -
5 decommissioning and uranium recovery licensing
6 directorate.

7 MR. SHEPHERD: I'm Jim Shepherd of the NRC,
8 same division.

9 MR. O'SULLIVAN: Kevin O'Sullivan from the
10 rulemaking branch.

11 MR. BOELDT: Eric Boeldt, Penn State
12 University.

13 MS. LANGHORST: Sue Langhorst, Washington
14 University in St. Louis.

15 MR. REESE: Steve Reese representing the
16 Organization of Training, Test and Research Reactors.

17 MR. CHARBENEAU: Randy Charbeineau,
18 University of Texas, Austin.

19 MR. KINNE: Craig Kinne, representing
20 Westinghouse.

21 MR. MORIE: Scott Morie representing
22 Nuclear Fuel Services.

23 MR. HOLMAN: Charlie Holman with Ariba.

24 MR. ANDERSON: Ralph Anderson with the
25 Nuclear Energy Institute.

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1 MR. BROWN: Roy Brown with the Council on
2 Radionuclides and Radiopharmaceuticals.

3 MR. PITTMAN: Dwight Pittman from Southern
4 Nuclear Operating Company.

5 MR. MAIERS: Bob Maiers with the
6 Pennsylvania Department of Environmental Protection.

7 MR. LEVIN: Adam Levin, Exxon Generation.

8 MR. RAKOVAN: Thank you. We have a number
9 of people who are on the phone line, and a few of them
10 are participation; a number of them are listen only.

11 If I could just have those on the phone
12 that will be participating in today's meeting
13 introduce themselves.

14 MR. CONLEY: This is Tom Conley. I'm with
15 the State of Kansas, and I'm also representing the
16 Organization of Agreement States, and the Conference
17 of Radiation Control Program Directors.

18 MR. EGIDI: My name is Phil Egidi. I'm
19 with the Radiation Control Program for the Colorado
20 Department of Public Health and Environment.

21 MS. FIELDS: This is Sarah Fields. I'm
22 with the Sierra Club in Moab, Utah.

23 MR. WORTH: This is Steve Worth. I'm with
24 the Nuclear Regulatory Commission, Region 3 office.

25 MR. CLOUD: This is Paul Cloud. I'm with

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1 the U.S. Army.

2 MR. RAKOVAN: Is that everyone on the line
3 then? Okay, thank you.

4 In terms of people in the audience, you'll
5 notice that we have two microphones set up.
6 Discussions primarily I think are probably going to be
7 up here, but you are certainly invited to participate.

8 If you do want to participate, come to one
9 of the mikes. I'm going to continue to scan, as
10 discussions are happening. When you do have a chance
11 to participate, get my attention if I'm somehow
12 diverted or not paying attention to you.

13 If you could introduce yourselves similar
14 to the way we did here. Give us your name, and
15 whatever organization or business you are with. That
16 way our transcriber can make sure that we know who is
17 making the comments.

18 Other than that, like I said, let's make
19 sure that we only have four of the microphones on at
20 the table. I just want to make sure that we don't
21 talk over people, or make sure that people can't be
22 heard.

23 You guys are definitely going to have to
24 try to help me kind of keep the meeting on pace, and
25 also make sure that there is only person speaking.

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1 I'd like to have a clean transcript, and by that I
2 don't just mean no dirty language. Make sure that we
3 just have one person talking at a time, so it's clean
4 and you can see who was saying what. So I'd
5 appreciate your help in that.

6 In terms of just kind of groundrule kind
7 of things, if everyone would make sure that your cell
8 phones are on vibrate or off. For those of you on the
9 phone who are participating, if you could make sure
10 that your phones are muted if you are not speaking.
11 Again, that will help reduce the noise level in the
12 room and for discussions.

13 If you did not receive a public meeting
14 feedback form, those of you around the table, when you
15 came in next to the handouts for the meeting, if you
16 could grab one of those and fill it out, you could
17 either give that to any of the NRC people here, or you
18 can send it through the mail. It doesn't cost
19 anything to send. We do pay attention to these, and
20 they do have an effect on how we will do these
21 meetings in the future, so that helps us out a lot if
22 you go ahead and fill those out for us.

23 Other than that, for restrooms, if you
24 leave the room and turn to your left, go down about as
25 far as you can and turn to your left, and essentially

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1 make a U-turn almost, that's where I found the closest
2 restrooms. I don't know, maybe there are ones that
3 are closer, but those are the ones that I found.

4 We will be taking a break, at least one
5 break in the morning, one break in the afternoon, and
6 a break midday for lunch, since we are in the heart of
7 Bethesda, there are plenty of places that you can go
8 to for lunch. I'm sure the people at the hotel will
9 be more than happy to give you a recommendation if you
10 wanted to, but you could probably walk out to
11 Wisconsin and see half a dozen places or more to eat.
12 So that shouldn't be a problem.

13 Other than that, I think what I'd like to
14 do is turn things over to Drew Persinko to give kind
15 of a more formal welcome to the meeting.

16 So, Drew?

17 MR. PERSINKO: Good morning.

18 As Lance mentioned the purpose of the
19 meeting today is to collect information from
20 stakeholders on several regulatory issues.

21 The regulatory issues are part of a
22 technical basis of a contemplated proposed rule.

23 The objective of the proposed rule is to
24 reduce the likelihood that facilities under NRC
25 jurisdiction would become a legacy site.

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1 The technical basis lays out a
2 justification for a proposed rulemaking, and
3 recommends regulatory changes for public comment.

4 In the morning session the discussions
5 will be on residual radioactivity at operating
6 facilities. In the afternoon the discussions are on
7 decommissioning financial insurance.

8 We seek your input as stakeholders, and
9 will use the information from today's meeting
10 preparing the technical basis of the proposed rule.

11 One source for our technical basis at this
12 point is SECY 03-0069 that contained recommendations
13 from the NRC staff to prevent legacy sites.

14 Attachment 7 and 8 of the SECY provide
15 recommendations including the rulemaking. The
16 commission approved the recommendations and
17 attachments 7 and 8 with comments in November of 2003.

18 In May 2004, NRC released a regulatory
19 information summary, a RIS as we call it, RIS 2004-08,
20 to all holders of operating licenses for nuclear power
21 reactors, research and test reactors, and
22 decommissioning sites.

23 The RIS identified issues in the SECY, and
24 informed licensees of a schedule for future actions
25 and opportunities for stakeholder comment.

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1 In April of 2005, NRC hosted a
2 decommission workshop to collect stakeholder comments
3 on the issues identified in the RIS.

4 In September of 2005 NRC published another
5 document using the technical basis entitled The
6 General Guidance for Inspections and Enforcement to
7 Prevent Future Legacy and Indicators of Higher Risk of
8 Subsurface Contamination.

9 In August of 2006 NRC published another
10 document using the technical basis, the Liquid
11 Radioactive Release Lessons Learned Task Force Final
12 Report.

13 All of these have been available on the
14 NRC public meetings for decommissioning websites since
15 December 22 of 2006.

16 So developing the technical basis is where
17 we are with this effort right now. We seek your input
18 as stakeholders to help structure the justification
19 for a proposed rule and to help us understand what
20 concepts may work in recommended language for proposed
21 rule text.

22 When we finish the technical basis, we
23 provide that information to another division in a
24 federal state materials environmental management
25 program - it's Kevin's division - that is responsible

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1 for preparing the proposed rule package, signed by
2 the EDO, and consideration by the commission.

3 Kevin O'Sullivan handles that part of the
4 effort. So with that I'd just turn it over to Kevin.

5 MR. O'SULLIVAN: Thanks, Drew.

6 I'm a project manager in the rulemaking
7 branch of the Office of Federal and State Materials
8 and Environmental Management Programs.

9 My branch chief is Mark Delligatti, who
10 sitting in the front row here.

11 Drew just mentioned what a technical basis
12 is. It's required for a proposed rule.

13 After we receive a robust technical basis
14 for this proposed rule, I'm going to manage a group of
15 14 people on a working group, and that group is going
16 to prepare the proposed rule.

17 The proposed rule will be published, go
18 out for public comment, and we will receive the public
19 comments, and the working group will look at them and
20 consider them in the publication of a final rule.

21 The final rule will be submitted to the
22 executive director of operations and must be approved
23 by a commission before publication, just like the
24 proposed rule.

25 So going back to the technical basis that

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1 we're trying to gather from this meeting, we
2 appreciate all of your coming and input from everybody
3 to inform the technical basis, and we will move on
4 back to Lance, who will take us on to the next
5 session.

6 MR. RAKOVAN: All right, just to kind of
7 review, the topics for discussion today involve issues
8 that may contribute to funding shortfalls for
9 decommissioning in order to prevent legacy sites.

10 Legacy sites, just to define, are sites
11 that are in decommissioning but do not have the funds
12 necessary to terminate their license.

13 To date these have been materials
14 facilities, not power reactors. One of the things I
15 want to stress is, when we're talking about licensees
16 in this meeting, try to remember, we're not talking
17 about power plant licensees, we're talking about a
18 number of different kinds of licensees, fuels
19 facilities, materials licensees, et cetera.

20 The agenda identifies the topics for
21 discussion, and again we are just going to kind of set
22 them up and knock them down. And hopefully everybody
23 has copies of the background and talking points that
24 were out on the table out there.

25 Just to make sure that you are aware of

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1 the kind of things that we are going to not discuss in
2 the meeting, we've got an easel set up here just to
3 let you know things that we would like to not discuss
4 today to try to keep the meeting focused given the
5 amount of time that we have: Restricted and
6 unrestricted radiologic criteria for site termination;
7 site-specific issues - again, if you want to use a
8 site as an example of something to kind of help along
9 your point, that's one thing. But we don't want to
10 get into a particular site and an in depth discussion
11 on that.

12 Dose assessments and power reactor
13 financial assurance for decommissioning.

14 The other thing that I want to call
15 attention to is, I do have an easel here for parking
16 lot items. The way that I define the parking lot is
17 that if we're having a conversation on something, and
18 somebody brings up a topic that is a good topic that
19 we want to address, but it doesn't necessarily work
20 with the flow of the discussion or for some reason we
21 don't want to really get into it at this point, we'll
22 throw it up here on the parking lot.

23 If you look at your agenda, we've got at
24 least an hour at the end of the day that we are hoping
25 to have to kind of hit these kinds of issues or issues

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1 that we want to go back and discuss more in depth.

2 If we have time, we'll try to hit all the
3 issues on the parking lot. But that's what this will
4 be for.

5 Unless there are any questions, and I'll
6 say that with a very long pause afterwards, to make
7 sure I don't have any hands going up, we'll get things
8 underway. So Kevin, if you want to go over the
9 background for the first topic please.

10 ROUNDTABLE DISCUSSION

11 Radionuclides of Interest to Support

12 Decommissioning Objectives

13 MR. O'SULLIVAN: Everybody should have a
14 handout. I'm on page two of eight in that handout
15 that is entitled Radionuclides of Interest to Support
16 Decommissioning Objectives.

17 There are four bullets on this slide that
18 you have in front of you. The purpose of the first
19 bullet is to provide a definition of decommissioning.
20 The second bullet notes that some decommissioning
21 actions are complex. The third bullet provides a
22 definition of residual radioactivity. And the fourth
23 bullet notes that this residual radioactivity at some
24 decommissioning facilities involves very long-lived
25 radionuclides.

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1 So this raises the following two issues.

2 MR. RAKOVAN: Okay, the two issues are,
3 which radionuclides related to the operation of a
4 licensed facility could potentially produce residual
5 radioactivity that may affect decommissioning
6 activities? And what are the circumstances when
7 residual radioactivity poses a problem and the
8 resulting effects on decommissioning planning.

9 Now again, those are the two topics that
10 we would like to address in this particular session.
11 If possible we'd like to take them one at a time. So
12 what I'd like to do is kind of put that first one out
13 for discussion, which of the radionuclides related to
14 the operation of a licensed facility could potentially
15 produce residual radioactivity that may affect
16 decommissioning activities, and basically see what
17 everyone has to say about it.

18 So anyone at the table want to start off
19 the conversations? I know it's first thing in the
20 morning, but there's no time like the present to grab
21 your mike and get your opinion known.

22 Or you can be shy. Please, Mr. Anderson

23 MR. ANDERSEN: Yes, Ralph Andersen with the
24 Nuclear Energy Institute. At the outset I just wanted
25 to say that in addition to a few of my colleagues here

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1 from operating companies, our comments will strictly
2 focus on power reactors. We certainly have great
3 representation across all the other licensees, so that
4 although any IS member companies across the whole
5 spectrum that I'm here today to talk specifically
6 about power reactors.

7 The primary nuclides that we've actually
8 seen from decommissioning experience at power reactors
9 that actually drive decisions within the
10 decommissioning seem to include tritium and cobalt 60
11 in groundwater in particular, and cesium - excuse me,
12 I misspoke myself - strontium 90 in tritium within
13 groundwater, and cesium 137 in cobalt 60 in soil.

14 Obviously we do comprehensive surveys for
15 a whole wide variety of radionuclides, but these are
16 the ones that are typically the ones that cause the
17 decision-making in terms of what actions will be
18 taken. So especially in relationship to the DCGLs and
19 so forth in planning in the decommissioning.

20 MR. RAKOVAN: Thank you.

21 Anyone want to grow on Mr. Andersen's
22 comment, or make a comment in a different direction?

23 MR. CONLEY: This is Tom Conley. I assume
24 you can hear me.

25 MR. RAKOVAN: Yes, Tom, please go ahead.

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1 MR. CONLEY: The list I have is ones that
2 we've encountered in our work, such as carbon 14,
3 tritium, thorium 232 as well as all of its daughters
4 and such.

5 And in particular one that we are dealing
6 with extensively is radium 236. These are all ones
7 that we've found drive a lot of decisions and create
8 issues that involve a great deal of cost and effort in
9 decommissioning.

10 MR. RAKOVAN: Thank you, Tom.

11 MR. CONLEY: This is Village Union Grand
12 Junction. In addition to Tom's list, I'd have to add
13 uranium, because we also see uranium tubes that are
14 driving surety costs at recovery facilities.

15 MR. RAKOVAN: Thank you. Mr. Maiers, I see
16 you are looking at me like you would like to make a
17 comment.

18 MR. MAIERS: Yes, this is Bob Maiers, I'm
19 with the state of Pennsylvania. Radium 226 is a
20 radionuclide that we are finding out there that has
21 been previously unlicensed. There is a number of
22 repair shops that deal with aircraft gauges that used
23 radium 226. We found several sites like that, and
24 radium 226 is definitely a radionuclide that we see as
25 posing a problem.

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1 MR. RAKOVAN: Thank you.

2 Ms. Langhorst?

3 MS. LANGHORST: As far as research
4 facilities and hospitals, I would say our major
5 isotopes are tritium and carbon 14 that we worry about
6 as far as long term.

7 Most of our cesiums and cobalt 60s are
8 sealed sources.

9 MR. RAKOVAN: I'm sorry, whoever has the
10 music going on in the audience, can you please answer
11 your phone? It's kind of catchy.

12 MS. LANGHORST: I would like to ask what
13 everyone considers as very long half life.

14 MR. RAKOVAN: Very long?

15 MS. LANGHORST: Isn't that what - very
16 long-lived.

17 MR. RAKOVAN: Okay, we've got a question on
18 the table, what do we consider to be very long. I
19 don't know if the NRC wants to address that, or
20 whether people at the table want to take a crack at
21 what they think very long is. Will no one come to Ms.
22 Langhorst's aid?

23 MR. CONLEY: I'll take a shot at it.
24 Without going into specific numbers, I think it can
25 depend a lot on the individual characteristics of the

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1 site. Obviously, the isotopes in the days, weeks and
2 months half-life timeframes I would not consider long-
3 lived, but depending on the isotope and the
4 characteristics of the site and how it migrates in the
5 environment, one that might for one site might be
6 considered long-lived may in another site be able to
7 be justified as considered a shorter lived.

8 I'm not sure how much sense that makes,
9 but just from a practical standpoint of trying to deal
10 with the sites, I think that is something that needs
11 to be taken into consideration as we look at that.

12 MR. RAKOVAN: Thanks, Tom.

13 I saw Jim Shepherd from the NRC has put
14 his light on, so I think he might have something to
15 interject.

16 MR. SHEPHERD: Yes, I agree with what Tom
17 said. But if you look at the distribution of half
18 lives, certainly uranium with a billion-year half life
19 is very long-lived. Cobalt, with a five-year half
20 life for example, is probably not.

21 There is a fairly logical break at about
22 100 years where there is a spread. So for purposes of
23 planning for this concept we're looking at things
24 being over 100 years as being considered a long half
25 life.

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1 MR. RAKOVAN: Thanks, Jim.

2 Mr. Andersen, I think I saw your hand up.
3 Did you have a comment?

4 MR. ANDERSEN: Yes, I just wanted to make
5 a comment that I'll probably make several times during
6 the morning. And I think Tom's comments were very
7 appropriate. And that is that I think with a lot of
8 these issues we are going to end up with an answer
9 that starts with that depends, because something I'd
10 like to say at the outset is, I think we need to
11 beware of one-size-fits-all approaches to either
12 defining terms or determining solutions to problems.

13 MR. RAKOVAN: Thank you for that comment.

14 Ms. Langhorst, did that more or less give
15 you some perspective on your question?

16 MS. LANGHORST: Well, decommissioning is
17 required for licenses. Funding plan, when you have
18 certain isotopes that greater than 120-day half life.
19 So I wondered if very long half life was that or
20 longer, so that helps me.

21 MR. RAKOVAN: Okay. Anyone else have any
22 comments on this particular question? Or should we go
23 ahead and move along to the next part of this
24 discussion?

25 MR. EGIDI: Lance, this is Phil in Grand

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1 Junction.

2 Getting back to the list of isotopes at a
3 previous life at some fuel cycle facilities you might
4 also see tech 99. It can get into aquifers too like
5 at Paducah, for example. So it might be the top of
6 the list, but you might want to add that to your
7 list.i

8 And the other thing is solubility, the
9 chemical state of these things is also going to make
10 a role on the likelihood of environmental
11 contaminations.

12 MR. RAKOVAN: Okay, thanks for those
13 additions.

14 Before I do move on I wanted to make sure
15 - we have a number of groups if you will that are
16 represented at the table, and I just wanted to make
17 sure that each group feels that they have had a chance
18 to interject and make their opinion known on this
19 particular issue before we move on.

20 Please, Mr. Morie.

21 MR. MORIE: Scott Morie of the Nuclear Fuel
22 Services. Just wanted to I guess confirm what we've
23 had on tech 99 uranium in groundwater, as thorium in
24 soils.

25 MR. RAKOVAN: Thank you.

1 Okay, seeing no other hands, and no one
2 has approached the microphones in the audience -
3 please sir, if you could approach the microphone and
4 identify yourself?

5 MR. NARDI: Joseph Nardi with Enercon
6 Services. I just wanted to comment that it's not only
7 the radionuclides but the concentration that is
8 important. And there is no mechanism in the current
9 decommissioning rulemaking that allows you to
10 establish site-specific DCGLs or criteria early in the
11 game during operation. Everything is done during the
12 decommissioning plan approval process.

13 And if you look at some of the
14 radionuclides, such as uranium, the screening values
15 are extremely restrictive that you are trying to
16 predict what your decommissioning costs are. But you
17 have no way of getting site specific approval.

18 MR. RAKOVAN: Okay, thank you for that.
19 Tom, if you want to approach the mike and identify
20 yourself. You might want to make sure it's on as
21 well, since you are the first to comment.

22 It doesn't sound like it.

23 MR. GREEVES: John Greeves with JTE
24 Consulting. Just a comment on what's long. I just
25 would observe that I'd opine that five years may be a

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1 reasonable numbers. If you've got five and decay,
2 after 50 years maybe you can handle it socially within
3 that organization. You get any higher than that and
4 you are talking about 30 year half lives, you are
5 talking about 300-year decay.

6 So I'd just opine that maybe five years is
7 a reasonable number for a nuclide in terms of a cutoff
8 point.

9 You go any higher than that and you are
10 talking about societal issues that go on for hundreds
11 of years, for example strontium, cesium.

12 MR. RAKOVAN: Thanks, John.

13 Anyone want to build upon either of those
14 comments that were made from the audience?

15 Okay, I will look to Mr. O'Sullivan to get
16 a nod to make sure that it's okay to move on to the
17 next topic?

18 Okay, within the same topic, the other
19 question that we wanted to throw out was, what are the
20 circumstances when residual radioactivity poses a
21 problem, and what are the resulting effects on
22 decommissioning planning?

23 Take a moment if you like. Ms. Langhorst?

24 MS. LANGHORST: Again, I will ask for a
25 definition: What is considered a problem?

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1 MR. RAKOVAN: Excellent question.

2 Jim, please.

3 MR. SHEPHERD: From the perspective of
4 decommissioning, one problem we have is when someone
5 submits a decommissioning plan but they have not
6 adequately identified all of the contamination that
7 they need to address for decommissioning because it is
8 unknown.

9 MR. RAKOVAN: Tim if you could speak more
10 into your microphone I think the people in the back of
11 the room are having a difficult time hearing.

12 MR. SHEPHERD: Is that better?

13 MR. RAKOVAN: Much.

14 MR. SHEPHERD: If there needs to be a
15 change to the decommissioning plan and the funding for
16 it, because of unidentified contamination in the
17 initial submittal, that creates a problem both for us
18 and for the licensees.

19 MS. LANGHORST: Would another problem be
20 not adequately addressing the costs of
21 decommissioning? I got that out of your
22 documentation?

23 MR. SHEPHERD: Yes, it is. Generally the
24 funding for the decommissioning plan is based on an
25 early estimate of how much the contamination needs to

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1 be remediated. And if they haven't identified all the
2 contamination often, especially in the material sites,
3 after they shut down there is no revenue generation.
4 So they don't have the fiscal ability to readily add
5 money for decommissioning.

6 MR. RAKOVAN: Does anyone else have any
7 questions?

8 MR. ANDERSEN: Actually, a question for
9 Jim. I was intrigued by the notion of when the
10 decommissioning plan or the funding needs to be
11 changed. Is there a word, significant, missing in
12 that, Jim? Or do you envision that there is some
13 achievable process where virtually all decommissioning
14 plans, first issue would be the one and only
15 decommissioning plan that you would end with? Because
16 frankly I don't think that's either practical or
17 desirable.

18 MR. SHEPHERD: Yes, point well taken.
19 Certainly no one gets everything absolutely perfect
20 the first time, nor do we expect it to be.

21 And the problem really comes when the
22 changes cause activities, either physical activities
23 on the site or disposal costs that exceed the
24 financial resources of the licensee.

25 MR. EGIDI: This is Phil Egidi. One of the

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1 observations we've had at uranium recovery facilities
2 in Colorado was inadequate monitoring during the
3 operational phase. There is so much of a focus on the
4 empowerments that there hasn't been enough focus on
5 monitoring and lead detection and secondary
6 containment type issues at these facilities, such that
7 by the time they go to characterize the site when they
8 are a year out from termination, the way Part 40 kind
9 of lends you to go, you are in a bad way, because then
10 you are running out of money. Your agency is getting
11 ready to go into closure, and your finding allotted
12 greater impact than you had anticipated.

13 So the requirement, or the need to address
14 earlier monitoring, is paramount in our opinion.

15 MR. RAKOVAN: Mr. Boeldt, you had a comment
16 to make?

17 MR. BOELDT: More of a question, actually.

18 For licenses that have issues with
19 decommissioning, were the issues because the licensee
20 knew there was a problem and chose not to deal with it
21 ahead of time? Or was it something that they found
22 after they really started closing down?

23 I can think of the Quehanna site that I
24 think the licensee should have known that there was a
25 problem earlier on. There was strontium known about

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1 there, what, a decade before closure, but it wasn't
2 until actually they got around to decommissioning
3 that, that oops, we didn't have enough money.

4 And I guess that is the question: which is
5 it?

6 MR. CONLEY: This is Tom Conley from Kansas
7 again.

8 It's been our experience that all of the
9 above. There has been sites that should have known,
10 or did know, and chose to ignore it. There were - we
11 have seen sites where there have been complete
12 surprises to both them and us.

13 So I think the answer to your question is
14 all of the above.

15 MR. RAKOVAN: Jim, do you have a comment to
16 make? You seem to be a popular guy this morning.

17 MR. SHEPHERD: No, I think Tom covered it
18 very well.

19 In the case where a licensee really should
20 have known and didn't, that may impact the way we deal
21 with that licensee, but it doesn't really change the
22 scope of the problem, whether they should have done
23 it. And that's one of the issues we're trying to
24 address in this proposed rulemaking is to ensure that
25 if they really should have known, there is a mechanism

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1 that we can encourage them to do that.

2 MR. RAKOVAN: Mr. Maiers?

3 MR. MAIERS: Bob Maiers with Pennsylvania.

4 I thank you for bringing up Quehanna. That's a very
5 good case study for financial assurance.

6 Speaking to that case, we are the -
7 Pennsylvania is the licensee for that, and it was my
8 observation that in that case, and in many other
9 cases, there is a real resistance to spending a lot of
10 money for characterization. For some reason
11 management used characterization as sometimes a wasted
12 cost.

13 In my experience, though, it seems that a
14 good characterization is essential for determining the
15 financial assurance, and in doing an effective
16 cleanup.

17 So I just wanted to make that observation.

18 Then I also had a question for Jim if I
19 could. I'm wondering if at this point, a lot of these
20 complex sites are either nearing completion or are
21 complete, has NRC taken a look back to see how the
22 actual costs of the decommissioning has stacked up
23 against what was in the decommissioning fund? Again,
24 it's my observation that in Pennsylvania that in no
25 case has a decommissioning come in less than what they

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1 assumed it would cost.

2 MR. SHEPHERD: Well, we certainly agree
3 with your conclusion. I guess I'd ask Tom Fredericks
4 if we've actually made a record of actual cost versus
5 estimated cost at the beginning. I believe the answer
6 is mostly no, that occasionally we will get a final
7 cost, but so long as it's paid for, we do not delve
8 too deeply into how they came up with the money, or
9 how much it actually cost, as long as the job is done.

10 MR. RAKOVAN: Tom, since you are standing
11 right here, do you want to introduce yourself and use
12 the mike?

13 MR. FREDERICHS: I'm Tom Frederichs with
14 the NRC, I'm project manager for financial analysis.

15 The answer to that question is that
16 licensees aren't required to tell us what the final
17 cost is, so we don't collect that information in a
18 formal manner. We do get anecdotal information, and
19 certainly we can see in some cases as decommissioning
20 costs estimates rise over time that initial estimates
21 were inadequate.

22 So I think the conclusion is that we take
23 from it is that one way to present the legacy sites is
24 to get an accurate cost estimate in the first place.
25 To do that you have to have an accurate

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1 characterization of the site, because that's where a
2 lot of the cost overruns come from; that once you get
3 into digging up the ground you find out it's more
4 expensive than you thought, and it winds up costing
5 you.

6 MR. RAKOVAN: Did that answer the question?
7 Please?

8 MR. MAIERS: I would just like to suggest
9 that that might be something worthwhile, and while you
10 are struggling with whether financial assurance is
11 adequate, to look at some case studies of some sites.
12 Pennsylvania, I brought four examples with me today,
13 relatively recent examples, of what the actual costs
14 were as opposed to what was in the decommissioning.

15 The Quehanna facility I can tell you right
16 now, with the funding that we were required to put up
17 for that was I believe \$4.5 million; to date we've
18 spent over \$30 million, and we aren't done yet.

19 MR. SHEPHERD: I think in one of this
20 afternoon's sessions, Tom is going to talk about
21 enhanced reporting requirements. Maybe that would be
22 a good place to bring that up.

23 MR. RAKOVAN: Mr. Maiers, do you want me to
24 put that particular issue in the parking lot, or do
25 you have that one, and you are ready to discuss at the

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1 afternoon session?

2 Sure, why don't you let me know exactly
3 what I should write so I phrase it correctly.

4 MR. MAIERS: A study of completed or nearly
5 completed complex decommissioning sites to compare
6 actual costs versus decommissioning cost estimates.

7 MR. RAKOVAN: Thank you.

8 I see someone has stood up. If you could
9 introduce yourself please.

10 MR. PITTIGLIO: Larry Pittiglio with the
11 Nuclear Regulatory Commission.

12 Let me just make one additional comment,
13 because on of the things we've looked at in all of
14 these cost estimates is that NRC's concern is only
15 with radiological decommissioning, and that's where
16 the numbers, when you see total cost, really get
17 carried away, because it may include site restoration
18 and other items other than the 25 milligram ALARA. So
19 when you start looking at numbers, when you look at
20 the total number, you are going to have a hard time
21 separating out actually what NRC costs related to
22 radiological decommissioning.

23 MR. RAKOVAN: Thank you, Mr. Pittiglio.

24 MR. EGIDI: This is Phil from Grand
25 Junction.

1 I think that needs to be clarified,
2 because under Part 40 the license covers the
3 radiological and nonradiological hazards, so you got
4 to count chemical clean up, perhaps, if it's byproduct
5 material, if the chemical is in contact with the
6 radioactivity, it's byproduct material and it gets
7 captured by that.

8 So perhaps - I understand what you are
9 saying, that there are other costs - but you may need
10 to parse that out a little bit.

11 MS. FIELDS: This is Sara in Moab, and I'm
12 going to have to leave soon, but I wanted to say
13 something about the Moab Mill, which is not considered
14 a legacy site because Congress gave it to the
15 Department of Energy to remediate.

16 But one of the things they found was a
17 tremendous amount of groundwater contamination from
18 the mill itself, and the NRC did not have any
19 monitoring wells between the down gradient from the
20 mill, between the mill and the Colorado River, so
21 there is a continuing plume of contamination from the
22 site that is still going into the Colorado River.

23 Looking at the total situation at the
24 mill, it was a tremendous failure on the part of the
25 NRC staff to regulate that mill, and to identify all

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1 the sources of contamination at the mill while it was
2 being licensed and while it was being operated, so by
3 the time they discovered a lot of this it was really
4 too late, and too late to get anything more than \$6.5
5 million for a - it would cost the - the DOE estimated
6 that it would cost over \$100 million just to tap the
7 tailings in place on the river. But the DOE
8 determined that the tailings should be moved.

9 And there has to be more - the NRC has to
10 have more requirements for monitoring at the mill
11 site.

12 MR. RAKOVAN: Thank you for your comments,
13 Ms. Fields. Feel free to join us back later if you
14 are able to do so.

15 Jim, I think you were about to make a
16 comment.

17 MR. SHEPHERD: Well, concerning Phil and
18 Larry's discussion, of course they are both correct,
19 and that's one of the things we have to deal with is
20 the differences in the various license types within
21 the NRC. So it just has to be very careful how we
22 word any potential rule that will affect the potential
23 spectrum.

24 MR. RAKOVAN: Okay. Ms. Langhorst, and
25 then we will go to - you're okay with him going first?

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1 Okay?

2 MR. CHARBENEAU: I just want to confirm
3 that I agree with that, that you do have to agree with
4 that, that you do have to pay attention to the type
5 and scale of the facility. With the research and
6 teaching reactors with their size we've gone through
7 three of the reactors that have gone through
8 successful -

9 MR. CONLEY: Are you there?

10 MR. CHARBENEAU: Am I being heard?

11 MR. RAKOVAN: It looks like somebody muted
12 the line.

13 MR. CHARBENEAU: Thank you.

14 That for the size of the facilities, with
15 the research and testing reactor program that we have
16 gone through successful decommissioning for at least
17 three facilities for unconditional use, and we have
18 three other ones that are undergoing decommissioning,
19 and we haven't seen the types of problems that you are
20 seeing at other types of facilities.

21 MR. RAKOVAN: Thanks, Mr. Charbeneau.

22 Ms. Langhorst?

23 MS. LANGHORST: For materials licensees,
24 hospitals, universities, typically are not using
25 uncontained great quantities of these long-lived

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1 isotopes. I guess the points that I've been looking
2 at are really the potential sanitary sewer release,
3 which goes into a system which is not ours, and that
4 can be a significant amount of release, when we look
5 at patient excretion, but those are typically very
6 short-lived isotopes.

7 And then the other possibility is in an
8 emergency situation, where you have a fire, and a lot
9 of water to douse a fire, earthquake, flood. I kind
10 of would like to hear if NRC has any information from
11 licensees that have gone through those types of
12 catastrophic experiences, and what kind of - for
13 material licensees of our type what kind of residual
14 activity you might find at that point?

15 MR. SHEPHERD: This is Jim Shepherd. To
16 answer half your question, we have looked extensively
17 at reconcentration of releases in sewer systems and
18 sewer treatment systems, and there is a whole study
19 undergone on that.

20 I'm not personally aware of evaluation of
21 the other catastrophic releases you talked about.

22 MR. RAKOVAN: Jim - I'm sorry, Tom?

23 MR. FREDRICHS: This is Tom Fredrichs. As
24 part of the rulemaking here, and Kevin you might add
25 to it, we looked at some of our records, and we

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1 couldn't find any real significant cost that came up
2 from these types of emergencies.

3 So apparently whatever the cost may have
4 been, the licensees have been able to handle it
5 without too much trouble in their own.

6 MS. LANGHORST: That might be a good source
7 of information that NRC could maybe ask those
8 licensees for their input with regard to this.

9 MR. O'SULLIVAN: Yes, the next topic on the
10 agenda, it goes into the types of facilities, and why
11 they might or might not be included in the rulemaking.

12 MR. RAKOVAN: Mr. Boeldt?

13 MR. BOELDT: I have a general comment here,
14 just based on some of the discussion.

15 We've heard some examples, in Moab and the
16 state of Pennsylvania site, where the decommissioning
17 costs have well exceeded either what was funded or
18 what was available or what was anticipated.

19 Let me also point out kind of
20 springboarding on Randy's comment, there have been
21 half a dozen major radiopharmaceutical sites that have
22 been successfully decommissioned, that did come in
23 right at budget, or approximately what we thought it
24 would cost. So there are quite a few examples out
25 there of very successfully decommissioning efforts

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1 that did cost what we thought it would.

2 So let's make sure we don't go out and do
3 a rule that's not necessary here. I mean if we've got
4 a problem with a particular licensee, let's deal with
5 it on a licensing basis with that licensee, and let's
6 not do a broad rulemaking because we've had a few
7 problems here and there.

8 MR. RAKOVAN: Okay. Any further
9 discussion? Yes, Mr. Andersen.

10 MR. ANDERSEN: Yes, this is Ralph Andersen,
11 using Jim's working definition of a problem, and I
12 tend to agree with that, as something that challenges
13 the available resources, and creates the potential for
14 a legacy site, in the reactor area, then, I guess what
15 we would say is, we've certainly had some surprises
16 and challenges, but nothing near approaching what we
17 would call a problem.

18 That was why I mentioned of necessity, for
19 many types of licensees, including reactors, you
20 anticipate that once you get into exploratory type of
21 characterization, and once you begin deconstructing
22 very large facilities, that that's when you are going
23 to really reach a final quantification of what you've
24 got.

25 A good example would be contamination

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1 under buildings. It's kind of difficult to
2 characterize what it is when the building is still
3 standing and you are still operating it. So you go
4 into it with the understanding that you are going to
5 evolve over time, but I just want to reinforce what
6 I'll call the working definition of a problem is the
7 extent of the new information sufficient to really
8 challenge the resources that you have laid out and
9 made available.

10 I'll say also, at least looking at our own
11 experience, just by the way things worked out,
12 actually, the front line facilities that have
13 decommissioned power reactors, in many cases,
14 represent the most challenging of circumstances,
15 because in many cases they were single unit companies
16 that not only were decommissioning a particular plant;
17 they were effectively decommissioning themselves out
18 of the nuclear energy business, and in many cases, had
19 shut down the plants before their full term of
20 operation, which means that the funds themselves had
21 not realized full maturity.

22 Nevertheless, the decommissionings had
23 been undertaken; the funds were brought forward; and
24 the decommissionings in most cases have been
25 completed, again, not without surprises and

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1 challenges, and lots of interactions with the
2 regulator. But I don't think we ever approached a
3 space where we were talking about a possibility of
4 exceeding resources or a legacy site.

5 MR. RAKOVAN: Thank you.

6 Any further discussion on this topic?

7 MR. EGIDI: This is Phil Egidi in Colorado.

8 We had a couple of smaller licensees that
9 were decommissioned in the same order of magnitude as
10 their bond, where it was manageable. But it seems to
11 be the rare case.

12 Now what one has to recognize, as we saw
13 with Rocky Flats and some of the other major D&Ds that
14 are happening now, the technology is increasing so
15 that the physical cost of demolition itself is
16 sometimes not the big driver like it used to be as
17 compared to waste disposal costs, which really factor
18 in a lot to surety.

19 We've found that if you constrained the
20 amount of authorization, and work with the labs and
21 such like that to get the stuff out of there, rather
22 than let it accumulate, that the cost of their
23 financial assurance could come down quite a bit.

24 Another way that we have addressed
25 uncertainty with these is to use a probabilistic

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1 approach. We actually set up a crystal ball
2 spreadsheet, and we plug in ranges rather than single
3 points for the estimates, and that seems to give us a
4 better ballpark to work with when we set the surety
5 amount.

6 MR. RAKOVAN: Thank you, Mr. Egidi.

7 If there is no further - people coming out
8 with comments, I think I'm going to put the NRC people
9 on the spot at this point and see if there is any more
10 focused or more pointed questions we could ask to see
11 if we could facilitate a little additional discussion
12 on this.

13 Considering we - it looks like we've got
14 about 45 minutes left on this particular topic, Kevin,
15 Jim, Drew, do you guys have anything that maybe you
16 kind of wanted to hear about a little more? Or do you
17 just want to move on?

18 MR. O'SULLIVAN: Well, we have another
19 topic that can take some of the time of 45 minutes,
20 but I do not have any more questions on this topic
21 under the nuclides.

22 MR. RAKOVAN: Okay, I'll pause once more
23 just to make sure that no one has anything they want
24 to interject about on this topic.

25 (Automated phone voice)

1 MR. RAKOVAN: Okay, that's good news.

2 Do we still have the people on the phone
3 with us?

4 Okay, I'm not sure what that was, but
5 let's just push on. Why don't we go ahead and move on
6 to the next topic, then,

7 Kevin, if you want to give us the quick
8 background.

9 ROUNDTABLE DISCUSSION

10 Types of facilities that have a potential to
11 contaminate the subsurface

12 MR. O'SULLIVAN: We should now be on page
13 three of eight of the handout. This is one the types
14 of facilities that have a potential to contaminate the
15 subsurface. And under the background information
16 there are two bullets.

17 The first bullet identifies that all
18 nuclear power reactors, research and test reactors,
19 and fuel cycle facilities, have a potential to
20 contaminate the subsurface with residual
21 radioactivity.

22 The second bullet identifies a list of
23 nine other types of facilities for which some
24 facilities in each type would have a potential to
25 contaminate the subsurface with residual

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1 radioactivity.

2 And this raises one issue for us.

3 MR. RAKOVAN: Okay, the issue that we are
4 throwing out there for discussion, for the types of
5 facilities shown in the background section for this
6 topic, what are the features of these facilities that
7 create a potential to contaminate the subsurface with
8 residual activity?

9 Mr. Andersen first. Okay, defer to Mr.
10 Reese.

11 MR. REESE: Steve Reese from TRTR. I just
12 want to make a comment regarding this. I think most
13 of us could agree that when your source term is at or
14 below drinking standards it doesn't meet anyone's
15 definition of a problem, certainly during a
16 decommissioning problem, and that is certainly the
17 case with a TRTR facility, most of the test and
18 research reactor facilities. Our source term, i.e.
19 the primary water, the feature in the research
20 reactor, which would be your source term, are at
21 power, at equilibrium, at the highest concentration at
22 the source term, are at or below EPA drinking water
23 standards to begin with. So it's a little bit of a
24 stretch for us to understand why training research and
25 test reactors might be included into as great a

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1 concern as a mill site that has been left for 20
2 years, or left for 20 or 30 years.

3 MR. RAKOVAN: Okay, Kevin, you look like
4 you might have a reaction to that?

5 MR. O'SULLIVAN: Yes, the source for this
6 was placed on the web. I call it the 82 site survey,
7 through the guidance.

8 MR. PERSINKO: I think it's the general
9 guidance for inspections and enforcements to prevent
10 future legacy sites. It's a report that was put
11 together back in September of 2005 where we went in
12 and looked at a number of sites, including some of the
13 research and test reactors.

14 And I think in some of the research and
15 test reactors, they found some surface contamination,
16 maybe in one case some groundwater contamination I
17 believe.

18 MR. O'SULLIVAN: And in that source
19 document they went out and looked at 82 sites, and
20 made conclusions on those three types of facilities,
21 with the rulemaking under consideration, that those
22 three certainly should be considered within the scope.

23 But we came into a problem within our own
24 working group in looking at this type of an issue, and
25 this is the type of information we need from

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1 stakeholders as to what you consider to be a problem
2 within the scope of the rulemaking.

3 MR. REESE: Well, if I could just add to
4 that, that if the source term from this contamination
5 is probably primary water I would imagine leaking, I
6 would argue that if your primary source term, although
7 let's assume you could find - let's assume in the one
8 or two cases you found on the test reactors you found
9 contamination, I'm not really privy to the levels that
10 you found, but if I know that the primary water levels
11 are at the EPA drinking water standard, then I don't
12 think it meets Mr. Andersen's general requirement for
13 exceeding the resource, particularly for university
14 reactors that are endorsed by the respective states.

15 That's all.

16 MR. RAKOVAN: Mr. Andersen, did you have a
17 comment?

18 MR. ANDERSEN: I did. Actually it follows
19 along with what Steve said, in that I think the
20 broader concept is - I'm always intrigued by lists,
21 because I always try to work through in my mind how
22 you qualify for a list, or how you dequalify for a
23 list.

24 If I go to the topic of the workshop, I
25 would think the list would have something to do with

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1 the sites' potential to become legacy sites. And I
2 don't see that this list has anything to do with that.

3 I don't disagree that irrespective of
4 concentrations that all of the listed facilities
5 there, and I guess there is close to a dozen, have a
6 potential to contaminate the subsurface with residual
7 radioactivity. In fact I'd point out, that again,
8 speaking solely of power reactors, that is an
9 anticipated outcome of routine operation. That is
10 your expectation that you will contaminate the
11 subsurface routinely and legally discharging effluents
12 that settle onto the ground and filter down into the
13 soil and ultimately into the groundwater, so you are
14 not surprised by that.

15 But what you might want to do is take the
16 thinking on this issue and expand it to be that what
17 you are looking for is features of these types of
18 facilities create a potential to contaminate the
19 surface of residual radioactivity to the extent that
20 they create a problem for decommissioning, because
21 that's the problem you are trying to solve.

22 If the problem you are trying to solve is
23 not to have subsurface contamination, I can tell you
24 that reactors, that that is categorically impossible
25 unless we no longer have effluent discharges.

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1 So just for clarity I think you might want
2 to define the information you are looking for in a way
3 that relates directly to the topic of the workshop.

4 MR. RAKOVAN: Yes, Mr. Boeldt?

5 MR. BOELDT: Yes, going back to the TRTR
6 reactors, there are some reactors that operate at 100
7 watts or half a megawatt or something like that that
8 don't have a lot of production of radioisotopes
9 associated. To include them in the same rulemaking
10 with those that are primarily pharmaceutical
11 productions with products of long-lived nature is just
12 a fraudulent assumption. The regulations, when they
13 do appear, need to separate those two out. If a 100-
14 watt reactor is just operating, and having pool water
15 that is safe for drinking, to say that they should
16 monitor the groundwater is just wrong.

17 MR. RAKOVAN: It sounds like a comment we
18 had earlier before, there shouldn't be a one size fits
19 all in terms of this rule.

20 Well, we've heard some reactor type
21 facilities. Any other types of facilities that we
22 want to discuss in this, since we did want to expand
23 this past reactors.

24 Ms. Langhorst?

25 MS. LANGHORST: Another question that I

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1 have is, has the NRC observed any subsurface
2 contamination problems with academic research or
3 medical licensees? Maybe some special cases that are
4 processing large amounts, but I don't know of any. I
5 was curious.

6 MR. CONLEY: This is Tom Conley in Kansas.
7 Yes, we have.

8 MR. RAKOVAN: Thanks, Tom. Drew?

9 MR. PERSINKO: I mentioned the report, the
10 general guidance for inspection and enforcement, the
11 one that was put back in September.

12 MR. RAKOVAN: Could you speak up just a
13 little bit?

14 MR. PERSINKO: And in the back there it's
15 broken down by different types of facilities, and it
16 notes where different contamination was found, and for
17 test and research reactors, there was, as far as
18 university reactors, there was one reactor that did
19 have groundwater contamination.

20 The level I don't know off the top of my
21 head. I can't tell the level right now, but I know it
22 had groundwater contamination in one case. In other
23 cases, there was surface contamination.

24 MR. RAKOVAN: Thanks, Drew.

25 Mr. Boeldt?

1 MR. BOELDT: Would you happen to remember
2 what the contaminant was? Was it part of their
3 operations, or was it part of radioisotope product?

4 MR. PERSINKO: I'd have to go look and see.
5 I don't know that answer off the top of my head.

6 MR. RAKOVAN: Mr. Reese.

7 MR. REESE: I don't want to necessarily
8 identify the facility, but I think I know which
9 facility it was, and I believe it was a cool water
10 issue, and it turned out to be a nonissue. It's the
11 difference between going back to Mr. Andersen's
12 comment about detecting something that is far below -
13 when you are at or below the actual detection limits
14 of the equipment you are using trying to find this
15 material, or is that really going to impact the
16 decommissioning costs, which is the point we're
17 making.

18 MR. RAKOVAN: We have a member of the
19 audience who would like to make a comment. If you
20 could identify yourself please.

21 MS. BARLOW: Yes, I'm Agnes Barlow from
22 Yale University. I wanted to kind of repeat the
23 question that was asked, but focus on academic broad
24 scope licensees that don't have a research reactor
25 perhaps.

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1 Looking at what we do with tracer levels
2 and sealed sources and things with a half life under
3 120 days, and just knowing the frequency of surveys
4 that we do in individual labs and don't see
5 contamination, I'm having a hard time figuring out how
6 a university could cause subsurface contamination. I
7 just can't figure out what that route would be, and
8 was wondering, if there is an incidence, when there
9 was an academic broad scope licensee without a reactor
10 that caused some subsurface contamination.

11 And kind of a second part to the question
12 I think is how often does a large academic institution
13 go bankrupt or decide to terminate their license?
14 We've been around for 300 years, and I think we are
15 going to be around for some time to come.

16 Thank you.

17 MR. RAKOVAN: Thank you for your questions.

18 Anyone want to try to address either of
19 the questions that she threw out here?

20 MR. EGIDI: This is still in Grand Junction
21 again. I'd like to expand on that.

22 Our experience here is, we have had a
23 couple of universities that have had subsurface
24 contamination. They were from legacy activities.

25 One is, as mentioned in the background, is

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1 improper burial at CSU. That's being monitored.

2 We also had some different research stuff
3 that are legacy issues that are coming back from the
4 Cold War, Beagle studies, stuff like that, that have
5 caused contaminations.

6 We've also had another university setting
7 where they were doing research into milling and mining
8 methods, and have done substantial subsurface
9 contamination.

10 But it would be a corollary to uranium
11 milling, but these were not source material licensees
12 as such.

13 So we have seen in the past where
14 universities will definitely generate subsurface
15 contamination, but it's not from your day to day CHIPS
16 laboratory for sure.

17 MR. RAKOVAN: Thanks for that input.

18 Jim?

19 MR. SHEPHERD: I think early in our process
20 we recognized that those facilities that deal with
21 sealed sources have an extremely low likelihood of
22 ever causing enough contamination to impact
23 subsurface, and that thought process will of course be
24 reflected in the rule.

25 And to reiterate what Phil said, the

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1 problems that we have seen with contamination at
2 universities, and similar facilities, is more
3 resultant from long term burials under what we now
4 call 10 CFR 20.2002, but many of them date back to
5 pre-1981 when the rules for sub-burials were much
6 looser than they are today.

7 MR. RAKOVAN: Okay. Any other discussion
8 on the comment? Mr. Brown?

9 MR. BROWN: Roy Brown with Carrere
10 (phonetic). A couple of comments. We are required by
11 regulation and license conditions for most sites that
12 produce radiopharmaceuticals and produce biomedical
13 research radionuclides to report significant
14 environmental impact incidents. If something comes
15 up, something happens that would lead to a significant
16 environmental impact, we have to report it as part of
17 the license condition and in the regulations.

18 Also, historically, if things happen that
19 will impact decommissioning, we go back and redo our
20 decommissioning estimate, the cost estimate for
21 decommissioning.

22 So we don't see this as a big issue, and
23 we don't argue that there are some broad scope medical
24 licensees that could lead to potential groundwater
25 problems. But we've addressed that. We address that

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1 through surveys. We include that in our
2 decommissioning costs.

3 Another comment: in one of the SECY
4 papers, attachment seven in SECY 03-0069 one of the
5 options was on site property damage insurance to cover
6 accidental releases. We think this is absurd.

7 So we are dramatically opposed to this,
8 and we can either include - we have several specific
9 comments like this. We can either put them in writing
10 or bring them up one by one as the topics come up,
11 however the NRC wants to do this.

12 MR. RAKOVAN: Let me make sure we fully
13 answer your question before we move on, at least to
14 the point - you think so? Okay, all right, I did want
15 to go to Mr. Pittiglio, since I notice he's standing.

16 MR. PITTIGLIO: I just did want to make one
17 comment, from the reaction we got from the list. I
18 think that was the intent. It said, potential, but
19 the reason why the list was there was to invoke
20 comments from the public as to what you thought about
21 these facilities, and your reaction to it. That was
22 the intent of why we identified those particular areas
23 was to invoke some discussion.

24 MR. RAKOVAN: Okay, thanks.

25 Did we have a reaction to Mr. Brown's

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1 comments about how we would like to receive his
2 comments?

3 MR. O'SULLIVAN: Point well taken on the
4 insurance issue. I would like to mention though that
5 one of the nuclides brought up under the academic and
6 research and development was carbon 14, and that put
7 it on the list of facilities that might be of
8 interest.

9 MR. RAKOVAN: Please?

10 MS. BARLOW: Anges Barlow from Yale again.
11 C14 is really expensive in the research environment,
12 so I don't think we have more than 10 millicuries on
13 site at any one time. And again it's used in very
14 small volumes, you know, little 10 ml at the most, so
15 I'm just again hard pressed to see how that could
16 really cause problems.

17 And one other thing I wanted to mention
18 from earlier is, we worry about the 10 half lives, and
19 say if something has a half life of 25 years, then
20 we're going to have to worry about it for 250; perhaps
21 not. It depends on what the concentration is. If
22 it's twice background, well, one half life brings you
23 back to background. And everything isn't always 10
24 half lives to decommission.

25 MR. RAKOVAN: Thank you.

1 Any reaction to that, or discussion in a
2 different direction? Jim?

3 MR. SHEPHERD: First, yes, I agree that the
4 arbitrary use of 10 half lives without talking about
5 the original source term is not an appropriate way to
6 go about things.

7 Secondly, to address Roy's comments, I
8 think perhaps in this afternoon's session on financial
9 assurance there will be a place to bring those
10 questions directly to us.

11 MR. RAKOVAN: Is that something that you
12 would like to stick in the parking lot, or do you have
13 that as a note already?

14 MR. BROWN: I'm okay for now.

15 MR. RAKOVAN: Somehow I didn't think you
16 would forget it.

17 Mr. Andersen.

18 MR. ANDERSEN: Yes. Something that I
19 wanted to highlight with regard to the issue as stated
20 is obviously there is an existing requirement,
21 20.1406, which establishes requirements for new
22 facilities of various types when they undergo
23 licensing to take into account the lessons learned in
24 experience, to specifically reduce contamination,
25 reduce waste, and reduce impacts on decommissioning.

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1 So I just wanted to note that. Not
2 everyone would be aware of that. It doesn't apply to
3 all types of licensees, but there is a large effort
4 underway within the NRC to capture those, and actually
5 develop regulatory guidance on how to implement that
6 existing requirement, particularly as we're looking at
7 potentially licensing a number of new facilities
8 including power reactors.

9 So there ought to be some good
10 coordination, I think, to gain an understanding of
11 what those lessons learned have been. Many of your
12 staff have already answered that question to a large
13 extent for certain types of facilities. You ought to
14 have a common information base that you will use for
15 your decision making going through the rulemaking to
16 make sure you don't have one rule implying this, and
17 another rule implying that.

18 So I'd just bring that to your attention,
19 because I know we're doing a considerable amount of
20 work in capturing that information.

21 The other comment I wanted to make is this
22 issue of scale. I appreciate the comments of the
23 woman from Yale, and some of the other comments that
24 have been made, including Steve's comments. I think
25 there is a tendency to not set some level of

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1 significance in trying to scope issues. If we can
2 detect it, it's a problem.

3 In fact the chairman in a recent interview
4 in a Health Physics Society publication, made that
5 very comment, that we confuse the ability to detect
6 something with whether it creates a problem that needs
7 to be regulated.

8 And I see a lot of that underlying this
9 activity. I think we are responding to non-problems
10 in some cases.

11 I like the definition of legacy. I think
12 it's a legitimate concern. I think we need to address
13 it. I think we need to be careful though to not let
14 the scope of that spill across the land, no pun
15 intended.

16 MR. RAKOVAN: Thank you. Drew, did you have
17 a comment?

18 MR. PERSINKO: Oh, I was just going to note
19 that we, too, have a lessons learned task force. We
20 have a number of people participating, your group
21 being one of them. So it's collectively, NRC and
22 others, are collectively trying to capture the
23 decommissioning lessons learned.

24 MR. RAKOVAN: It just occurred to me, Drew,
25 that there are probably a lot of people here outside

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1 of our licensee categories that weren't aware of that.
2 I just wanted to make them aware that there is such an
3 effort underway.

4 MR. O'SULLIVAN: And I'd like to respond to
5 the 20.1406. In this proposed rulemaking we are
6 coordinating our efforts with research and with NNR,
7 their activities. Their activities are focused toward
8 license applications.

9 MR. RAKOVAN: Thanks.

10 Any other discussion topics that we want
11 to throw out there? If you take a look at the list of
12 these types of facilities and the background for this,
13 have we discussed to the participants satisfaction
14 that we've hit all these? Or is there any that we
15 want to kind of throw out there specifically?

16 MR. O'SULLIVAN: Yes, I've listened about
17 the top portion, and the academic R&D medical, and I
18 believe the M&D, manufacturing and distribution.

19 But the last five, if anybody has any
20 comments on those, the pool radiators with sealed
21 sources; nuclear laundry; decontamination services;
22 waste disposal; and the waste treatment services.

23 MR. EGIDI: This is Phil in Grand Junction.
24 Yes, we've had issues in a similar way, actually with
25 an analytical lab, significant soil contamination

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1 because their drains were leaking.

2 And when we got in there to decommission
3 the site, it was impacting near surface groundwater.

4 So these things can happen from unintended
5 consequences. Even though you may design it well, I
6 think the rule of thumb is, if you can spill it, it's
7 going to spill.

8 So that's kind of a broad approach to it.
9 But we have seen that in Colorado.

10 MR. RAKOVAN: Okay, any other reaction to
11 Kevin's question?

12 Gee, Kevin, don't seem to be a lot of
13 opinions on this one.

14 MR. EGIDI: Well, there are non-uranium
15 mills, there are other types of mills that could also
16 pose this problem.

17 Now as NRC you may not license them, but
18 agreement states may license them, and this is
19 something that is going to impact financial assurance.

20 If we are looking at surety, and the types
21 of places that need surety, those other types of mills
22 come into play.

23 MR. RAKOVAN: Okay, Mr. Morie.

24 MR. MORIE: Yes, Scott Morie with Nuclear
25 Fuel Services. And our experience has been, that we

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1 are an older operating facility, and doing a lot of
2 decontamination activities, soil and groundwater from
3 burial trenches, underground storage tanks, buildings,
4 et cetera.

5 MR. RAKOVAN: Thank you.

6 Any other - Ms. Langhorst?

7 MS. LANGHORST: Sue Langhorst, Washington
8 University.

9 I wanted to ask another question, or make
10 a point I guess. At a power plant you are well
11 removed from other licensees, but at a medical
12 licensee or university you can be just across the
13 street from another licensee, and that commingling of
14 different activities, and you are not responsible for
15 what happened across the street, but it may impact
16 your property.

17 That is another level of complexity there.
18 Not that I'm saying that any of these types of
19 licensees would have that type of impact, subsurface
20 or groundwater, but that's another level of
21 complexity.

22 MR. RAKOVAN: Excellent comment. Does
23 anyone want to build on that? Mr. Boeldt?

24 MR. BOELDT: Mr. Boeldt, Penn State
25 University. We had one situation about a dozen years

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1 ago, we were taking some duct work apart and found
2 cesium 137 and cesium 134 contamination.

3 This was from a lab that had only been
4 authorized for use of tritium and carbon over the last
5 few decades.

6 It turned out that that ductwork had been
7 there for 30 or 40 years, and that the contamination
8 was from atomic bomb tests.

9 So yes, there can be different reasons why
10 people have contamination.

11 MR. RAKOVAN: Thank you.

12 Jim?

13 MR. SHEPHERD: We haven't really looked too
14 closely at intermixing wastes, or contamination
15 streams. But certainly if there is a potential for
16 mixing different chemicals, or different chemical
17 compositions of varying types. That can have some
18 dramatic impacts, both on solubility or lack thereof
19 of the radionuclides, and also on the chemical
20 reactions within the groundwater system, that I don't
21 know how closely the EPA has actually addressed
22 either.

23 When I was doing chemical plant safety, we
24 were looking just within a single plant that had a
25 number of different chemicals, and what we found was

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1 there was a reasonable database for two chemical
2 interactions, but once you got to more than three
3 chemicals interacting, which could occur as Susan said
4 earlier in the case of a fire or some other far off
5 normal operation, there is not much data on what the
6 effects of that are.

7 MR. RAKOVAN: Ms. Langhorst?

8 MS. LANGHORST: But I would argue on that,
9 it's tough to predict that type of emergency
10 situation. When you are faced with it, and you have
11 to recover from it, I see that as part of looking at
12 the total impact.

13 But it's really tough on a licensee to
14 predict that kind of thing.

15 MR. RAKOVAN: Mr. Boeldt?

16 MR. BOELDT: And of course that's part of
17 day to day operations too. It's recovery of an
18 emergency situation. You just go ahead and fix it,
19 and whatever it costs, it costs. Unless it's to the
20 extent that it basically puts that licensee out of
21 business.

22 MR. RAKOVAN: Anyone want to add on to the
23 discussion, or bring up a new point?

24 Okay, if that's the case, then it looks
25 like we're doing with that particular session. We're

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1 running a little early, which is fine.

2 We're running a little early which is
3 fine. We were set to take a 15-minute break at 10:45.
4 Why don't we go ahead and take a 20-minute break now,
5 since we are moving just a little bit early.

6 I know my watch runs a little bit fast.
7 So I'm going to say that my watch now says I'll say 20
8 after, and so we'll start when my watch says 40 after.
9 I wish there was a watch in the room that I could
10 refer to, but there is not.

11 So 20 minutes, be ready to start again.
12 Thanks.

13 (Whereupon at 10:24 a.m. the
14 proceeding in the above-
15 entitled matter went off the
16 record to return on the record
17 at 10:48 a.m.)

18 MR. RAKOVAN: Okay, thank you all for
19 returning. It looks like we've got just about
20 everybody at the table, so we'll go ahead and get
21 started.

22 We're going to move into the next section,
23 and Kevin if you would like to do a quick overview of
24 the background information.

25 ROUNDTABLE DISCUSSION

1 Surveys and monitoring performed during
2 operations to support decommissioning, and
3 appropriate equipment/procedures for leak
4 detection and subsurface monitoring.

5 MR. O'SULLIVAN: Okay, thank you.

6 We're now on page four of eight of the
7 handout, on the topic, surveys and monitoring
8 performed during operations to support
9 decommissioning.

10 There are three bullets on this page, for
11 this topic.

12 The purpose of the first bullet is to
13 identify that substantial groundwater monitoring and
14 site characterization has already been done at all
15 nuclear power reactors, but not at all the material
16 sites.

17 The second bullet identifies that there
18 are regulations to limit gaseous and effluent releases
19 to the environment, but generally, there are no
20 specific NRC requirements to monitor on site
21 groundwater for residual radioactivity.

22 The subject of the third bullet is to
23 identify for nuclear power reactors that NEI has
24 provided information about a voluntary industry
25 groundwater protection initiative.

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1 This raises the following two issues.

2 MR. RAKOVAN: Thanks, Kevin.

3 The two issues that we are looking to
4 discuss in this next section are, one, should
5 licensees conduct activities during operations to
6 minimize residual radioactivity in the subsurface?

7 And the second one, what types of surveys
8 would be reasonable under the circumstances to
9 evaluate radiation levels in the facility and in the
10 environment.

11 So let's go ahead and throw that first one
12 out there. Should licensees conduct activities during
13 operations to minimize residual radioactivity in the
14 subsurface?

15 Mr. Andersen.

16 MR. ANDERSEN: Actually, I just wanted to
17 offer a comment on the background information.

18 I appreciate that in the second paragraph
19 that you got the word generally, but specifically, at
20 least power reactors - I'm not sure about other
21 facilities - if groundwater onsite represents a
22 drinking water pathway, in fact we are required to
23 monitor it, and that is the case at a number of
24 plants.

25 MR. RAKOVAN: Thank you for that

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1 clarification.

2 Lots of silence. Mr. Andersen.

3 MR. ANDERSEN: Okay, a question then about
4 the first item.

5 Is what you're looking for licensing
6 activities that are currently being conducted during
7 operations? Kevin, I wasn't clear what information
8 you're looking for. Can you elaborate a little bit to
9 help with that?

10 MR. SHEPHERD: Yes, this is Jim Shepherd.
11 What we are looking for, we are generally aware that
12 many licensees do a considerable amount of monitoring
13 both within the facility and outside the facility. In
14 addition to the existing regulatory requirements, such
15 as the radiological and environmental monitoring
16 programs.

17 So it would be beneficial to us to
18 understand better what is actually already going on at
19 the site, and then based on that, what might we
20 consider saying we think is a good enough idea that
21 perhaps licensees other than those who are already
22 doing it should also do it.

23 In some cases, it may simply be that what
24 in fact exists at facilities would adequately meet our
25 information needs. We just need to establish a formal

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1 way of having that information be available to the
2 staff, probably just for review.

3 I mean I have a lot of paper sitting on my
4 desk. I'm not looking for more reports. Just to
5 ensure that we can look at it.

6 MR. RAKOVAN: Did that answer your
7 question?

8 MR. ANDERSEN: It does, and I'll go first
9 if you like.

10 MR. RAKOVAN: Please, by all means.

11 MR. ANDERSEN: I'll defer for now the
12 information on the initiative that is highlighted in
13 bullet three, just because we got a lot of interaction
14 on that, and I think there is a lot on the website if
15 people choose to look at that.

16 But I'll just speak more to routine
17 operations. As a starting point, I think we need to
18 recognize that the potential for leakage is addressed
19 in the licensing process.

20 Typically in a deterministic assessment in
21 a complete failure of the system and a release of all
22 of its contents, it shows that doses to the public
23 would be a small fraction of 10 CFR Part 20, and then
24 in turn that creates operational constraints, like the
25 amount of radioactivity that you could have in an

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1 outside storage tank, or in piping and so forth, such
2 that you stay within those analyzed boundary
3 conditions.

4 So that's one important component that
5 ensures protection of public health and safety during
6 operations, the key there being in conducting your
7 analysis that could be an avenue to recognizing that
8 those criteria weren't set specifically to have an
9 impact on ultimate decommissioning. They were set to
10 protect public health and safety during a facility's
11 operation.

12 Nevertheless, there might be some nexus
13 there that you could draw on, because the conclusions
14 drawn, and the type of constraints that are put in
15 place are fairly standard. And they could give you
16 some notion of, if that is the impact, if you had an
17 instantaneous release of all the contents, and that's
18 the maximum situation that would occur, how could that
19 also bound what the potential impacts might be later
20 on decommissioning.

21 And again, I don't know if other types of
22 facilities have similar constraints that have large
23 volumes of process fluids.

24 A second thing is, both required and just
25 part of routine operations, I know that routinely

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1 we've got a lot of surveillance and testing or built
2 in means of leak detection on various systems, spent
3 fuel pools being an example, that would indicate leaks
4 by means other than having to wait until you find them
5 in groundwater.

6 So there is probably a large variation in
7 the types of practices undertaken, but I would just
8 say generically again you might want to specifically
9 ask people about what their leak detection practices
10 are.

11 In conjunction with that, there is also
12 issues associated with either leak prevention or leak
13 containment that are sort of standard within
14 licensing, berms around outside storage tanks and
15 things like that, and picking up on those aspects
16 would be another way to capture that. And again NRR
17 would probably be the right source of information to
18 summarize a lot of this.

19 And again, it probably relates to the
20 20.1406 activities, but what I'm suggesting once more
21 is that perhaps with some of these other categories of
22 licenses you've got a similar database to draw on to
23 sort of be able to reference the information, rather
24 than just pick it up anecdotally.

25 And then finally the issue of the

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1 contamination minimization in general I think -

2 MR. RAKOVAN: I'm sorry, the people in the
3 back are having a difficult time hearing you.

4 MR. ANDERSEN: Yes, sorry about that.

5 Then just as a final point, again, not
6 recognizing that these are unique to reactors, the
7 criteria that we operate to aren't limits on releases.
8 We actually operate to lowering the criteria to
9 maintain as low as reasonably achievable.

10 So our constants actually are the opposite
11 end of the spectrum. We don't make discharges that
12 are at regulatory limits. We conversely have to make
13 discharges at levels that are considered to already
14 reflect doing everything that you need to do.

15 So that implies a lot of practices within
16 that, but I'd just say that Appendix I is a good
17 source of information for reflecting on other licensee
18 categories and see if you have similar types of
19 things.

20 I know there is the Part 20 provision for
21 the ALARA constraint that was put in place five or 10
22 years ago.

23 So those are just suggestions of how you
24 might be able to capture that information in a swoop
25 if you have not already gone down some of those roads.

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1 MR. RAKOVAN: Thank you. Jim, did you have
2 a comment?

3 MR. SHEPHERD: Yes, thank you, Ralph, we
4 agree that there is information out there, and
5 guidance on whether to find all the things is very
6 helpful.

7 I would say that one of the issues that we
8 found at decommissioning reactors is apparently very
9 small leaks, especially from fuel pools on the order
10 of perhaps a tenth of a gallon per minute which are
11 much less than the sensitivity of leak detection in
12 fuel pools, but over a 20-year operating life that can
13 release more than million gallons to the subsurface.

14 So we have that dichotomy as to what is
15 really the best way to detect, and how do we set
16 appropriate limits.

17 MR. ANDERSEN: Yes, again in response to
18 that, that's where when I come at this from the notion
19 of concern about challenging the available resources,
20 or even being in the space of potential legacy sites,
21 the good news of that issue of those long term chronic
22 releases is that it assures concentration levels that
23 aren't going to pose significant challenges to the
24 license termination criteria.

25 And the - you know, I refer back to the

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1 experience that we've had with the plants we've had.
2 Even in the case where there was by my own checking
3 account margin a large amount of money spent to clean
4 up an unanticipated situation from a leaking spent
5 fuel pool, that represented a couple of percent of the
6 overall estimate for decommissioning costs.

7 So all I'm trying to comment is, the
8 situations that have existed have not loomed as
9 significant when you look at the large picture of what
10 has been set aside for decommissioning or what is
11 ultimately spent for the decommissioning.

12 So not to downplay at all, or not to in
13 any way imply that that sort of leakage is desirable
14 or acceptable, I think there are factors surrounding
15 it that if you look at, A, at impact on the actual
16 DCGLs they're going to come up with, and B, look at
17 what its ultimate impact is on resources in terms of
18 a possible legacy site, you find that it ranges from
19 nonexistent to very small.

20 MR. SHEPHERD: That is certainly true for
21 the reactors. I think in a number of material sites,
22 however, we find quite the opposite condition, where
23 there is significant leakage, and that is not only the
24 majority of the decommissioning cost, but it also far
25 exceeds the resources of the company.

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1 So we need to consider both ends of the
2 spectrum in anything we might come up with.

3 MR. EGIDI: This is Phil from Grand
4 Junction. I would concur with that wholeheartedly.

5 MR. RAKOVAN: Anybody else want to add on
6 to that discussion? Mr. Brown?

7 MR. BROWN: I won't speak to that comment
8 until later today.

9 But speaking for the radiopharmaceutical
10 manufacturers, and the medical radionuclide suppliers
11 for our member companies, it's really not the
12 regulations and license conditions that are the
13 drivers for surveys. It's really a layer of
14 environmental stewardship that really drive what the
15 manufacturers do at the site. So it's going much
16 further than the regulations; going much further than
17 the licensing conditions.

18 Routinely, these manufacturers typically
19 do error effluent monitoring, not only at the stack,
20 but at the perimeter of the property, and in most
21 cases offsite.

22 There is also some surface water
23 monitoring, some storm water monitoring. But
24 generally speaking there is not a lot of groundwater,
25 not routine groundwater sampling. It's just in that

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1 deemed as necessary.

2 But we would suggest that if that was felt
3 by NRC to be necessary, it would be much better
4 handled by license condition and on a case by case
5 basis rather than making a broad brush approach to
6 that.

7 MR. RAKOVAN: Mr. Reese?

8 MR. REESE: Steve Reese from TRTR. I want
9 to make a comment about research test reactors. In
10 addition to the normal environmental monitoring that
11 is required, that for the most part everyone is doing,
12 we all do it to different degrees, but what you will
13 find is that leak detection equipment is fairly easy
14 in a research test reactor for a couple of reasons.
15 One, you can physically see it. Normally these
16 facilities are pool type reactors.

17 And two they are almost - with maybe one
18 exception that I can think of - they are almost
19 entirely above ground. So if there is any issue,
20 usually leak detection is pretty easy to at least see,
21 and fix, usually, on the spot.

22 So I just wanted to add that comment.

23 MR. RAKOVAN: Anyone want to add on to the
24 discussion, or take things in a different direction?
25 Mr. Boeldt?

1 MR. BOELDT: I agree with Roy Brown that it
2 isn't just the regulations that have the academic
3 institutions making sure that the releases are as low
4 as reasonably achievable. It's our environmental
5 concerns and our desire to keep our names out of the
6 newspaper.

7 That's a real big issue. Any newspaper
8 that says, oh yeah, you've got release of some sort,
9 there was a release from my facility eight years ago.
10 It was a trivial amount. The NRC almost laughed at us
11 how little it was that we reported. The DEP, the
12 radiological people, thought it wasn't funny so to
13 speak, but realized that our results would be funny.
14 And it was in newspapers as far away as Florida.

15 So no, we are not going to let leaks
16 happen. We are going to minimize any leaks. And
17 because of this issue we don't want to drill holes to
18 monitor groundwater, because as soon as I drill a
19 hole, everybody in town is going to wonder what is
20 leaking that we have to drill for groundwater to
21 sample. Because if you are sampling it, that means
22 you are leaking to it, not in the eyes of the people
23 at this meeting probably, but at the people who will
24 be looking over our fences probably.

25 MR. EGIDI: This is Phil from Grand

1 Junction. I have to step in and comment on that.
2 With that philosophy we wouldn't put monitoring wells
3 around corner gas stations.

4 Putting in monitoring wells and doing
5 surveys is kind of a wellness thing. You are being
6 proactive, so I have to take exception to the approach
7 of your comment, that just because you're putting in
8 a well you're going to stir up that type of interest.

9 The public is smarter than that now, and
10 the underground storage tanks is the perfect example
11 of that.

12 MR. RAKOVAN: Okay, we can agree to
13 disagree, I think.

14 Ms. Langhorst?

15 MS. LANGHORST: I wanted to follow up on
16 one of Roy's comments also.

17 It sounds as far as academic licensees,
18 medical licensees and so on, it sounds like NRC is
19 concerned about specific processes that might happen
20 in a specific license, such as old burial sites, or
21 special research work done with uranium, thorium,
22 whatever.

23 That again I think should be done more on
24 a license condition, and a licensee by licensee basis,
25 because for the vast majority of these types of

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1 licenses, we don't have processes like that, or we no
2 longer have those burial sites, and many universities
3 have decommissioned those burial sites, and no longer
4 have them. So those are some of the comments I'd like
5 to make.

6 MR. RAKOVAN: Okay. I notice that our
7 representative from Yale has arisen again.

8 MS. BARLOW: Barlow from Yale. I just
9 wanted to agree with what Mr. Boeldt said. I think
10 there is a big difference between a new licensee, and
11 having a condition of the license that there be wells
12 and sampling and so forth.

13 There is a big difference between that and
14 a licensee that has been there for a long time, and
15 suddenly adding sampling. And it does look to the
16 public like something is wrong.

17 So I tend to agree with him on that that.

18 MR. RAKOVAN: Okay, thank you.

19 Mr. Kinne.

20 MR. KINNE: One of the issues with these
21 legacy sites, and why we are here today, is to involve
22 getting the public and stakeholders involved in the
23 decision making.

24 So this issue on drilling a hole to do
25 some monitoring and thinking that the public is going

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1 to raise a flag, well, they won't, they shouldn't, if
2 you involve the public in the process of your decision
3 making in going about doing those testing. I think
4 that's the direction we want to go, and to go
5 backwards is not the answer.

6 MR. RAKOVAN: Do you want to go to the
7 mike, please, and identify yourself?

8 MR. RANSOHOFF: Jack Ransohoff. I have a
9 couple of constructive suggestions to make that will
10 substantially reduce the cost of decommissioning. And
11 I'd like you to consider them.

12 These come from experience with a rational
13 enforcement of your existing requirements.

14 First thing here, you talk about
15 minimizing wells of contamination. Please stop using
16 the word minimize. To some people that means zero.
17 And every time someone comes up with a more sensitive
18 instrument, the number that means zero decreases. And
19 you have a very good regulation that should apply to
20 everybody called ALARA. And I think that if you
21 change, minimize, to make ALARA, that that would
22 really solve a lot of problems and save a lot of
23 people who are subject to these regulations in a
24 position to stop wasting a lot of money doing things
25 that shouldn't be done at all.

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1 The other thing you could do is make ALARA
2 apply to regulators and licensees alike. It should be
3 - there should be a death sentence to a regulator for
4 forcing a licensee to violate ALARA by doing something
5 that shouldn't be done.

6 And I have a couple of specific examples
7 I can give you if you like.

8 And one more constructive suggestion: a
9 very good way to deal with subsurface contamination
10 from storm water is turf. The existence of turf, dead
11 leaves, things like that, they are all sources of
12 carboxylic groups, which are very good ion exchange
13 media.

14 And we have a dry pond that is a huge
15 issue, where periodically we go into the dry pond and
16 we remove the soil from the channel that goes to the
17 effluent, the hole in the dry pond where effluent
18 normally leaks out.

19 When we get down to the subsurface, there
20 is no contamination. But the topsoil removes just
21 about all the radioactivity in the effluent.

22 We have neutron products over the years
23 has melted 8-1/2 million curies of cobalt 60. We are
24 dealing with picocuries levels of contamination. And
25 our regulators come out - you are all familiar with

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1 Marston, the way you determine the average
2 contamination of soil - our regulators come out with
3 micron meters, and they survey the property, not a
4 random survey, they just go around and look to see if
5 they can find any evidence of any radioactivity, maybe
6 cobalt 60, it might be uranium.

7 Then they take those sites, and they take
8 samples and they get them analyzed, and then they site
9 us for being in violation of the shutdown conditions
10 - not the operating conditions, the shutdown
11 conditions. We are in compliance with NRC operating
12 conditions by a factor of 99, and we have - we receive
13 citations all the time from the state. We have
14 thousands of citations for things that are really
15 inconsequential. We go to the NRC and complain and
16 say, we can't talk to you. You are regulated by the
17 state. Maryland is a sovereign state, and they can do
18 whatever they want.

19 I don't think you should be doing that.
20 In our case they shut down a business that was
21 generating about a million dollars a year in cash
22 flow, and who took over the market? The site in the
23 Soviet Union that contaminated a whole river basin and
24 the Arctic ocean.

25 MR. RAKOVAN: Sir, I know you weren't here

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1 when we did the initial, but we are trying to stay out
2 of site specific issues. If you would like to use
3 your particular business as an example, that's great.
4 But we don't want to get into the specifics on any
5 particular site.

6 MR. RANSOHOFF: Anyway, I think if you
7 would simply say that while you are operating, use
8 ALARA as your guideline for monitoring contamination.
9 And then when you remove contaminated soil, do
10 something with it that will protect any contamination
11 from getting into the subsurface. You shouldn't have
12 to shift soil that you remove that really is better
13 used as shielding, convenience shielding, than should
14 be disposed of as a serious hazard.

15 Anything that you shift through a disposal
16 site is going somewhere, and it has just as much
17 capability for groundwater contamination at the
18 disposal site as at the site you have.

19 And there are a lot of things that we can
20 do to drastically reduce the cost of decommissioning
21 that we are not permitted to do.

22 Thank you.

23 MR. RAKOVAN: Thanks.

24 Mr. Reese.

25 MR. REESE: I just wanted to go back to the

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1 issue of wells. I guess the point I want to make is
2 that while there are certainly circumstances where
3 wells are appropriate and needed, we - I guess the
4 concern from a licensee point of view is that most
5 universities - material license universities, and most
6 research reactors - they don't have - you know, for
7 soluble materials, I'll just use that drinking water
8 standard again, if your source term is at the drinking
9 water standard, it's hard to justify why you would
10 need to sink a well to show that through dilution it's
11 below the drinking water standard.

12 So I guess there is opportunity for scale
13 in looking at - we know the source term, and we know
14 that source term is really small, and we know that
15 that will not lead to an issue with regard to legacy
16 - a legacy site, a facility not being able to - or an
17 organization not being able to pay for the
18 decommissioning costs because of groundwater
19 contamination. If there is no issue to begin with,
20 then we probably shouldn't be sinking wells.

21 MR. RAKOVAN: Okay, any further comments?

22 Kevin, you look like you want to say
23 something?

24 MR. SHEPHERD: Yes, I would like to ask the
25 licensees. We identified on page three of eight the

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1 different types of facilities that may have a
2 potential. And on this page we are looking for
3 information on surveys and monitoring.

4 And that is good information about the
5 source term, and whether it is dissolving or not. But
6 for those licensees who have source terms that exceed
7 the drinking water standard, what are you doing,
8 during operations, to support the characterization and
9 subsurface, with any survey and monitoring activities?

10 MR. RAKOVAN: Please, Mr. Morie.

11 MR. MORIE: Scott Morie, with Nuclear Fuel
12 Services. Once again, we are an older facility,
13 operating -

14 MR. RAKOVAN: If you could speak up a
15 little bit.

16 MR. MORIE: Sure. In the course of
17 performing decommissioning activities we have a lot of
18 plumes and soil contamination well defined, and that's
19 a result of our extensive characterization we
20 performed, groundwater modeling, hydrogeological
21 investigations, and also doing groundwater remediation
22 on a full scale basis.

23 MR. RAKOVAN: Okay, anyone want to take a
24 stab as well? Ms. Langhorst?

25 MR. EGIDI: This is Phil Egidi in Colorado.

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1 We have a uranium recovery facility that is still
2 operational; has been off and on.

3 Again, extensive groundwater monitoring
4 systems, where it was mandated by consent order, in
5 other words, where it was monitored by Appendix A,
6 Part 40, mostly around the impoundments, everything is
7 focused in Part 40 around the impoundments but not
8 focused in black and white for operation of the mill
9 itself, and that has been a very difficult row to hoe
10 to get them to put wells in.

11 And we have actually had to go to license
12 condition, and have those license conditions
13 challenged, to make them put points in to find that we
14 actually have huge amounts of groundwater under the
15 mill.

16 So there is issues about how we approach
17 this at least in source material licensees, because of
18 the resistance we're going to get to due
19 characterization. They are just so acclimated to 40
20 years of not having to do it that there is a
21 behavioral change that we need to consider.

22 MR. RAKOVAN: Thank you, Mr. Egidi. And
23 I'm sure Ms. Langhorst, Mr. Egidi, no slight in
24 cutting in on you there.

25 Anyone want to respond to that before Ms.

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1 Langhorst does?

2 MR. SHEPHERD: Well, not directly on Phil's
3 comment, but as a further question for discussion, if
4 I could pick on Scott a little bit, if you could tell
5 us a little bit more about where the actual monitoring
6 has taken place relative to the facility and the site
7 boundaries, that is one of the questions we're
8 considering, and the proposed rule is where should
9 what I will call additional monitoring, or at least
10 additional information for monitoring, should we look.

11 MR. MORIE: Originally, we had a location
12 I guess for groundwater purposes 10 downgradient -

13 MR. RAKOVAN: Sorry, I think they are still
14 having trouble hearing you.

15 MR. MORIE: Sorry, let me crank it up.

16 We had one up gradient well location and
17 10 down gradient right at our boundary initially. We
18 did some characterization on site at various areas
19 that had co-contaminants with chemical co-contaminant
20 investigation, and had a series of wells on site. We
21 did the groundwater model. It predicted a chemical
22 plume offsite, but we put wells offsite also to
23 confirm that model, and also showed areas where we
24 needed to focus on, some remediation. And that's
25 where we put in injection wells and more observation

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1 wells. And the ongoing groundwater remediation for
2 uranium and some other chemicals.

3 MR. RAKOVAN: Does that get to your
4 comment? Drew did you have a comment?

5 MR. PERSINKO: I was going to pose it a
6 little more broadly to the rest of the group as well.
7 If we could hear from folks who are doing groundwater
8 monitoring right now, where is the monitoring being
9 done? Is it being done at the site boundary? Or is
10 it being done close in to the facility?

11 And I'd like to hear what is being done
12 out there.

13 MR. RAKOVAN: Ms. Langhorst, are you okay
14 with hanging in there? Okay, just wanted to check.

15 Anybody have a response to Mr. Persinko's
16 question? Yes, first time that we've heard from Mr.
17 Holman.

18 MR. HOLMAN: Yes, this is Charlie Holman
19 from Ariba. We do monitoring within the site boundary
20 and outside the site boundary.

21 And I would suggest that you look at our
22 license applications. It has all the details. And
23 look at other licensees, and their commitments in
24 their license applications.

25 MR. RAKOVAN: Okay, any other comments?

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1 Please, if you could identify yourself?

2 MR. MURRAY: Yes, Scott Murray with GE
3 Nuclear.

4 We also have a fuel facility that does a
5 variety of monitoring. There are environmental
6 reports that you probably want to refer to that has a
7 wealth of information on it. We submit an
8 environmental report -- I think most of the other fuel
9 cycle licensees do as well - that describes in great
10 detail the various characteristics of the models and
11 results.

12 And I think it is a requirement of all of
13 our licensees that we have to do this in the fuel
14 cycle.

15 MR. RAKOVAN: Yes, Mr. Bollinger, if you
16 could introduce yourself please, since you have joined
17 the table.

18 MR. BOLLINGER: Sure. Jim Bollinger,
19 Savannah River National Laboratory.

20 MR. RAKOVAN: Could you turn the microphone
21 on, please, although we can hear you quite well.

22 MR. BOLLINGER: Jim Bollinger from the
23 Savannah River National Laboratory, and I also co-
24 chair the development of a consensus based standard on
25 radionuclide transport in the subsurface, that will be

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1 released in the next year or two.

2 And in that standard we are developing
3 guidance in terms of siting wells, et cetera. It
4 involves characterizing the regional and the local
5 hydrogeology. It involves some level of mathematical
6 modeling in terms of placing those wells. It involves
7 emplacing those wells to protect receptors at nearby
8 areas, so the placement of the wells and the
9 evaluation are certainly dependent on the potential
10 worst release. It's dependent on the complexity of
11 the hydrogeology. It's dependent on the complexity of
12 the regional demography, so the location of receptors
13 with respect to that plan.

14 But generally what we are prescribing is
15 that you emplace some wells, then you calibrate your
16 mathematical model. It's sort of iterative. You make
17 sure that you really understand the physics, and that
18 the physics that you are seeing in that model is
19 consistent with the hydrogeologic setting and the
20 regional setting, so you got wells in locations where
21 you are going to see something if it's released.

22 So that's an iterative process with the
23 modeling, and also, the data that you are gathering in
24 the field.

25 And I will say a little bit more about

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1 that standard at the end.

2 MR. RAKOVAN: Thank you. If you have
3 suggestions, if you could approach the mike and
4 identify yourself.

5 MR. RANSOHOFF: Just a suggestion on the
6 well sample.

7 Good information should be reported as
8 well as bad information. We have four or five wells
9 on our property. The radon levels in our water table
10 are pretty high. There is a lot of transuranium and
11 thorium in the area. It's not mineable, but the radon
12 is pretty high in the water.

13 So if you go to all the trouble of having
14 highly shielded counter, when you do well water
15 monitoring, if you find that there is nothing there
16 from the site in question, it would be well to report
17 that, and also to report the levels of natural
18 nuclides in the water. So that the public - the
19 public understanding is really at a low level here,
20 and it's got to be raised, and it would be helpful to
21 inform the public, and this is usually the case,
22 inform the public of what is naturally there when you
23 do these very sensitive measurements, and compare that
24 with what is coming from the facility.

25 And if nothing is coming from the

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1 facility, that should give everybody in the area a
2 good sense of comfort as to the precautions that the
3 operator of the facility is taking.

4 MR. RAKOVAN: Thank you.

5 Please.

6 MR. NARDI: Joseph Nardi with Enercon
7 Services. I just wanted to comment that we've got to
8 be very careful when we are talking about these
9 different programs that you understand what the
10 purpose is for the original concept. We're talking
11 about doing groundwater sampling for purposes of
12 generating hydrogeological information. That does not
13 have anything to do necessarily with detecting leakage
14 from the facility.

15 The same way is if you have an
16 environmental monitoring program, and it's not limited
17 to just groundwater, surface measurements, anything
18 else. If the purpose of that program is to try to
19 determine, is there an impact on the public during
20 operation, that is a completely different animal than
21 if you are asking the question, do I have leakage from
22 this system. An environmental monitoring program that
23 is trying to look for, am I releasing material near
24 the building, is different than an environmental
25 program, am I releasing something that impacts the

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1 public.

2 And I don't think we appreciate that all
3 the time, that you've got to know your question before
4 you try to use data.

5 MR. RAKOVAN: Thank you for that.

6 Mr. Andersen.

7 MR. ANDERSEN: Yes, I think that was a
8 great comment, and I'd like to build on it a little
9 bit, and then speak briefly to the initiative that is
10 referred to in the background information.

11 All the plants are required to monitor
12 groundwater where it represents a drinking water
13 pathway; I've mentioned that previously. So that's
14 100 percent of the plants, and the locations are part
15 of the operating license, and determine typically to
16 simply be within that pathway at some reasonable place
17 for conducting the monitoring.

18 We have instituted an initiative to do
19 additional monitoring on site in addition to what we
20 already have for other purposes such as drinking water
21 pathways.

22 The purpose of that monitoring, to pick up
23 on the previous comment, is to identify migration of
24 radionuclides in groundwater in a manner and time that
25 allows you to take some action before they would

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1 migrate off site. That's with an understanding that
2 that can pose alternate release pathways that
3 eventually could make their way in to groundwater,
4 additionally it could create issues just generally
5 with contamination of offsite property that wouldn't
6 necessarily be addressed to decommissioning.

7 So that is the purpose of that monitoring.
8 So we currently have 87 percent of our sites that do
9 onsite groundwater monitoring. The other 13 percent
10 are defining their onsite programs through what I
11 would call first level geohydrological evaluations.
12 So ultimately 100 percent of the plants will have some
13 form of onsite monitoring, even if that groundwater
14 doesn't pose a pathway to drinking water.

15 Specifically, the monitoring is not aimed
16 at characterization for decommissioning, nor is it
17 specifically aimed at leak detection, because I really
18 want to pick up on that other point.

19 When we looked at the issue, we didn't
20 find that groundwater monitoring should be your first
21 choice for leak detection. It's not very efficient.
22 You probably have to have a very sophisticated
23 geohydrological model, because you are not talking
24 about a large region. You're really talking about
25 near field situations, where you went in and built a

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1 site and disrupted the whole hydrogeology of the place
2 when you did that construction and installation of
3 building foundations and underground piping and so
4 forth. I defy anyone to come up with a very good
5 model for what the flow is under those situations.

6 But when you step out and say, well, what
7 I really want to do is make sure I identify things
8 between the facility and the site boundary, then at
9 least you've got a gambling chance to get a well in
10 the right place.

11 So that's why we put our emphasis on leak
12 detection and leak prevention. And I would comment
13 that to the extent that your proposals are aimed at
14 preventing legacy sites, there is undoubtedly some
15 role for groundwater monitoring, although I share Roy
16 Brown and others comments that that probably could be
17 done on a licensee-specific basis rather than a
18 generic rulemaking that applies to 12,500 licensees
19 that don't need it.

20 But I'd just caution again and again, I
21 keep hearing groundwater monitoring wells over the
22 last year and a half as the solution to all problems.
23 They're not. It's not a very efficient way. You
24 really need to be on the other end, and figure out
25 better ways to understand leakage from the source, to

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1 pick up on some of the comments of the DRTR folks.

2 So I'd just ask you to really think hard
3 about that before you get too enamored of the idea
4 that groundwater monitoring wells provide a level of
5 confidence relative to decommissioning that would be
6 meaningful.

7 The one other comment I would make with
8 that, in addition to the purpose of the monitoring,
9 you need to think hard about what is the purpose of
10 the information. I mentioned a facility that after
11 shut down for decommissioning, then identified when
12 they were deconstructing the building, identified that
13 they in fact had had leakage over a long period of
14 time, and had contaminated soil under the building.
15 Well, if the aliens had landed 20 years ago and said,
16 hey, you've got this situation, the question to ask
17 yourself is, what would they have done different?
18 Would they have excavated under the building during
19 operation? I don't think so.

20 Would they have offloaded all the fuel,
21 and drained the pool and gone down and done
22 significant repairs? Well, maybe, but that would have
23 been a very interesting cost-benefit analysis.

24 So think hard about the effect of your
25 requirements, in terms of what is it you expect a

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1 particular class of licensees to do with that
2 information even if they got it. And if you don't see
3 any practical application of it, then it's not a very
4 meaningful requirement.

5 MR. PERSINKO: I think that is where a link
6 to the financial aspect comes in, though. If you
7 detect it, now you - maybe you can't dig under the
8 building at the the given time that you are operating,
9 but you can now adjust your financial decommissioning
10 fund to accommodate that at some future time.

11 So that's where I think the link comes
12 between the financial and the subsurface contamination
13 that we are talking about.

14 MR. ANDERSEN: And I agree with you.
15 That's why I was suggesting that you might want to
16 differentiate whether it's a generic issue or whether
17 it's really limited to very different specific kinds
18 of facilities.

19 We are going to talk about funding this
20 afternoon, I understand that. But if you look at the
21 very very large contingencies that are built into
22 funds for power reactors, well beyond what the
23 standard estimating is, that's where I think you need
24 to look practically and say, well, gee, for each
25 licensee, is it likely that the conditions that could

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1 occur could really challenge the margins that are
2 already built in to the decommissioning fund.

3 And to me it indicates that probably the
4 answer isn't generic rulemaking for the licensees.
5 But that certainly should come out in the analysis.

6 MR. RAKOVAN: In the audience?

7 MR. MURRAY: Scott Murray with GE Nuclear
8 again. I'd like to build on something else; Ralph
9 just reminded me. The regulations, if you are going
10 to put regulations around groundwater monitoring, or
11 any kind of environmental monitoring, should be
12 somewhat performance based or risk based in some
13 fashion.

14 There is an assumption that there is a
15 receptor getting a dose or getting some sort of
16 exposure from whatever you find in the groundwater.
17 And I very strongly caution anybody thinking a
18 drinking water standard for groundwater at many of our
19 facilities just isn't the right number to even start
20 talking about. Because it's not drinking water. At
21 many of our facilities, there is nobody using that
22 water. It's soil contamination of some sort. It's
23 not going anywhere. There's not a person being
24 exposed.

25 And I strongly caution anybody thinking

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1 that if we start poking wells and getting groundwater
2 sampling, and using the criteria of drinking water
3 standard as whatever threshold or assumption or
4 number, they're going to be solely disappointed,
5 because that is not the right way to go at all.

6 Plus in addition, someone else made the
7 comment earlier about radon in water. There is a lot
8 of water. If you start sampling water, you're going
9 to get very high concentrations of radon that will not
10 meet that drinking water standard.

11 And again, the public and others won't
12 understand that. And I can see licensees being
13 saddled with the question, well, do you add that to
14 your decommissioning costs? Because it's there
15 naturally. And it's a very difficult decision that
16 you've got to make, because you're starting to
17 remediate groundwater, or considering the cost of
18 remediating groundwater from natural sources.

19 MR. RAKOVAN: Thank you.

20 Mr. Bollinger.

21 MR. BOLLINGER: Just to follow up with your
22 comment, that's the approach we're taking in the
23 standards development as well. It's a performance
24 assessment approach, in terms of really laying out
25 very clearly the regulatory framework, the objectives

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1 - if you are going to monitor, what are the
2 objectives? What are the receptors? What are the
3 risks? Laying out what indicators you're going to
4 look for, what type of water quality indicators.
5 Tritium is a pretty good one because it's so mobile,
6 then laying out very clearly what the performance
7 thresholds are, what you're going to do if you
8 actually find something.

9 And the standard that we are developing
10 does emphasize leak detection. That's much easier to
11 catch materials before they get into the environment,
12 although we can't, even with the best engineered
13 system, take that likelihood to zero.

14 So there is still a need for some
15 hydrogeologic, local and regional, hydrogeologic
16 monitoring systems, because there is a possibility of
17 things getting out in the environment. But you can
18 minimize those by very clearly defining up from what
19 your objectives and indicators are, and that's an
20 extremely important part of this process.

21 Otherwise, you are going to spend a lot of
22 money and get very poor results down the road.

23 MR. EGIDI: Lance, I'd like to comment.

24 MR. RAKOVAN: Sure, go ahead.

25 MR. EGIDI: This is Phil in Grand Junction.

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1 On that same vein, and trying to keep the
2 goal of financial assurance in mind, this is a very
3 important discussion about leak detection versus
4 groundwater monitoring, et cetera. And one of the
5 things that at least drives us is, in an agreement
6 state it's not necessarily the dose from an effluent
7 or a discharge, but it's going to be the protection of
8 the soil and the water in the air. In other words,
9 our state groundwater lawyers, they have a role.
10 State groundwater law may be different than what your
11 license conditions are, than what NRC regulation and
12 guidance would predicate. So there has to be a
13 balance, when we are focusing on financial assurance,
14 what the endpoint is. Because you may have something
15 that is ALARA from a dose to a receptor, but still may
16 not be protective of the resource, of the groundwater
17 resource, for future generations.

18 Kind of a philosophical thing, might be
19 outside a little bit of the scope of what we're
20 talking about today. But when we get back to planning
21 for financial assurance, it certainly comes into play.

22 MR. RAKOVAN: Thank you, Mr. Egidi.

23 We had a comment from the audience?

24 MR. GREEVES: John Greeves again.

25 It seems like the NRC is asking the

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1 question, should we require onsite monitoring? And
2 then there is some concern here about who and when.

3 And just to walk you through what's
4 already in place, which you very well know, you've
5 already got requirements for recordkeeping. If people
6 spill something on the ground, they are required to
7 keep that record.

8 You also already have in place
9 requirements for timeliness in decommissioning. And
10 (** 11:37:17) for example did a good job years ago of
11 getting on top of the contamination that was out
12 there. It was caught up in the timeliness rule. They
13 were mediated within about 24 months.

14 So when you put these two things together,
15 it sort of begs the question, why don't you try
16 monitoring, especially a trigger - what's the trigger?
17 And the trigger might well be, if you have to report
18 spills into the environment, in the soil, into the
19 groundwater, that's a good reason to start saying,
20 hey, ring the bell, let's make sure we put a
21 groundwater monitoring program in place. We know we
22 have a spill.

23 So these are just thoughts to work on.
24 The problem is, if you don't have these groundwater
25 monitoring system, you are blind. Benifest (phonetic)

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1 didn't have that monitoring system they put in
2 themselves, they never would have been able to get on
3 top of that issue.

4 GE talked about their system. All the
5 fuel fabrication systems have groundwater monitoring.
6 They talk about their reactors. A hundred percent of
7 them are going to have one at some point in time. Any
8 facility like that I think is enlightened to have it,
9 and you have to consider where and when would we
10 require that facilities have it. So there is some
11 judgment there, and I'd just offer those thoughts.

12 MR. RAKOVAN: Thank you.

13 Kevin, did you have a comment?

14 MR. O'SULLIVAN: Yes, I was going to ask
15 Mr. Bollinger, on the standard, the draft standard, is
16 there a paragraph on applicability, where you identify
17 who might be the target of the standard?

18 MR. BOLLINGER: Yes, there is. This is
19 aimed entirely at commercial - operating commercial
20 and new commercial nuclear power plants. And it could
21 be used in decommissioning as well. But it's really
22 aimed at operating nuclear power plants.

23 MR. RAKOVAN: Well, there is a cause in the
24 action. I have to go back to Ms. Langhorst, who had
25 a comment, gee, I don't know, like last week sometime

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1 I think, and we kind of ran over her.

2 So I want to go back to her and let her
3 make a comment, if she still remembers what it is.

4 MS. LANGHORST: Well, I didn't want to jump
5 in on this, because these type of licensees have this
6 potential, and academic broad scope licensees don't
7 have this potential of release into the groundwater
8 like this.

9 I wanted to make a comment on one point
10 that I believe Jim may have made, that you don't know
11 what licensees are doing. And I would urge you to
12 talk to your regional staff who licenses us, and
13 inspect us. And believe me, we have to demonstrate to
14 them all the time what we are doing. And I think if
15 you mind that resource you can identify some of the -
16 at least on the material licensees, where you have
17 special projects going on, if it's an academic
18 licensee, that could have a potential like this.

19 Again, I'm just not sure why I'm at the
20 table.

21 MR. RAKOVAN: Is Steven Orithon (phonetic)
22 on the line by any chance from Region 3?

23 Okay, he must have dropped off. I figured
24 since you brought up our regional people, I would go
25 to one, since he was on the line, but he must have had

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1 to drop off.

2 Does anybody else have any other comments
3 that they would like to make on this topic? Drew?

4 MR. PERSINKO: I just wanted to say,
5 something was said earlier that made me just think
6 about this some more, I think we always have to keep
7 in mind that what we're really trying to look is in
8 the future, 10, 20, whatever years down the road. I
9 mean a lot of times we say we don't have a problem,
10 and you may not. There is a fence line here. Certain
11 regulations apply to workers, and certain regulations
12 apply to the public. And we're looking down the row,
13 and that fence line isn't there any more, and you are
14 trying to clean that site up. And everybody is a
15 member of the public then at that point on that site.

16 So I just want to be careful that we know
17 we're talking 20 years down the road, and when you are
18 really trying to decommission your site to the
19 decommission standard which is 25 millirem all
20 pathways, rather than some other standard.

21 MR. RAKOVAN: Okay.

22 MR. CONLEY: This is Tom Conley from Kansas
23 again. I would disagree that we are necessarily
24 looking at 20 years down the road. We've got these
25 sites that exist today. There are existing sites that

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1 even academic broad scope that do have groundwater
2 issues. And we've also got sites where they have
3 complied with all of the existing effluent release and
4 monitoring requirements and yet still have soil
5 contamination that exceeds the unconditional release
6 criteria.

7 It's difficult to make broad statements
8 like that. You need to really be careful that you
9 are looking at all of the options, and all the
10 potential issues that you can see out there.

11 MR. PERSINKO: I wasn't trying to imply
12 that we shouldn't be doing something today. But I was
13 trying to say that there are times where I think we
14 say we don't have a problem today. But we are looking
15 at it under the lens of an operating plant, rather
16 than looking at it under the lens of what's going to
17 be required down the road 10, 20 years.

18 So I was trying to make sure we looked at
19 it with the lens of decommissioning, not under the
20 lens of operation.

21 MR. RAKOVAN: Ms. Langhorst.

22 MS. LANGHORST: I would agree with you that
23 you don't want to make a broad statement like that,
24 and I think that's why we are trying to urge you to
25 look at license-specific type issues, and not do a

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1 broad rulemaking that impacts the vast majority, and
2 they have no potential.

3 So if there are special projects happening
4 at a medical use facility, yes, I agree, you need to
5 be on that, and that needs to be considered in your
6 decommissioning planning and funding.

7 But a broad brush of a rulemaking that
8 impacts a lot of licensees may not be needed.

9 MR. RAKOVAN: Thank you, and I think
10 comments like that are the reason you're sitting at
11 the table.

12 Anybody want to add on to that, or have
13 something else? Mr. Andersen?

14 MR. ANDERSEN: Yes, I just wanted to add on
15 to Drew's point. The 20 years down the road look, I
16 think that is an important distinction to maintain
17 throughout, that issue of the difference between
18 protection of public health and safety during
19 operations, and protection of public health and safety
20 as a result of the decommissioning process.

21 But I'd just remind again that the driver
22 here is situations are so extraordinary that they
23 exceed the planned resources for the decommissioning.
24 And I want to make sure that we don't enter into this
25 with the implication that the process for estimating

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1 decommissioning funds is somehow so precise that every
2 increment of contamination is in addition to that
3 estimate. That estimate has already got a tremendous
4 margin in it to account for these unknowns.

5 So the issue is, what does it take to get
6 outside of that envelope even 20 years down the road?

7 The other issue on limits, it's true that
8 the decommissioning criteria are 25 in ALARA. Those
9 are significant higher than the criteria that we use
10 for operations. That's a fantastic increase; it's a
11 tenfold increase over the three millirem that we're
12 limited to as a drinking water source.

13 So in balancing these things, and it
14 occurs to me that for instance, for our community, I
15 know one of the things we are looking forward to is
16 coming in and sharing specific information that will
17 help your analysis of the onsite concentrations that
18 we are dealing with, so that we can reflect those
19 better for ourselves, and also in your proposals. Do
20 those even begin to challenge the criteria that would
21 apply at the time of license termination?

22 Our preliminary conclusion is that they
23 don't. But that's good for discussion. But we look
24 forward to doing that.

25 I assume that that is the way you are

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1 looking at other situations that you have had with
2 legacy sites, is, this is the criteria, this is the
3 concentration I'm dealing with during operations, but
4 what does that mean at the time of decommissioning?

5 Obviously, the dilemma of states, that's
6 the one other thing I wanted to touch on, is a
7 profound issue that continues. The differences in the
8 consideration of resource protection, and protection
9 of public health and safety, and the way those
10 manifest themselves under EPA-derived regulation and
11 NRC regulation I think continues to be an issue, and
12 I encourage NRC to continue to look for ways to try to
13 resolve that issue.

14 We've taken an approach in the things we
15 do that we really are going to need to meet all those
16 requirements ultimately someday, so we don't just look
17 at it in the context of NRC license termination
18 regulations.

19 And just one final comment: I think that
20 in terms of the funding assessment, that there is
21 opportunity to better connect the criteria in
22 regulation for documenting leaks and spills to an
23 assessment of impact on decommissioning.

24 Probably in the form of guidance rather
25 than rulemaking, I would say, looking at the tendency

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1 of our 10 CFR 50.75G as an example, perhaps it's
2 implied, but I think there is an opportunity for
3 additional guidance on what it means that you're
4 documenting such occurrences.

5 I know there is a similar requirements for
6 other licensees. But what you might want to do is
7 standardize your expectations better on how the
8 licensee evaluates that type of information in the
9 context of ultimate impact on decommissioning.

10 MR. RAKOVAN: Okay, let's try to wrap this
11 up, because I want to make sure that we have time to
12 go on to the other topic for this as well.

13 But if you guys want to interject real
14 quick?

15 MR. SHEPHERD: Basically, I agree with you
16 Ralph.

17 I would say one thing on the funding which
18 we'll really discuss more this afternoon, that as Tom
19 mentioned, licensees are not required to tell us what
20 their final cost.

21 So the information I have is primarily
22 anecdotal. But for the decommissioning reactors I
23 have seen, they all exceeded the decommissioning
24 funding plan as proposed anywhere from about \$10- to
25 almost \$100 million.

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1 Having said that, there was never any
2 issue over whether there was enough money for pay for
3 it. It always got paid for. There were no
4 complaints. There were no delays for money.

5 As we look at the new licensing and the
6 new structure of the organization, for example, the
7 Energy Daily a week ago talked about the new
8 consortiums and how they are probably not going to be
9 defined as utilities in the common sense of the word,
10 and therefore would not have the ability to collect
11 revenue through the ratepayers, which then raises the
12 question of if a licensee in that category exceeds its
13 decommissioning cost estimate where could the money
14 come from, as opposed to those today they have been
15 able to either take it out of resources from other
16 operating facilities, or in one case simply extend the
17 amount of time they collect from the ratepayers.

18 But again, I think we'll get more into
19 that this afternoon.

20 MR. RAKOVAN: Kevin, did you want to make
21 a quick point?

22 MR. O'SULLIVAN: Yes, I had a quick
23 question for Ralph Andersen, and Steve Reese, I was
24 going to ask you a question about the larger test
25 reactors.

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1 Ralph, those numbers, the 87 percent
2 existing operating reactors have groundwater in 13
3 percent, are those NEI member utilities reactors, or
4 is that industry?2

5 MR. ANDERSEN: Those are identical
6 categories, 100 percent of NEI is in fact 100 percent
7 of the operating a decommissioning reactors.

8 MR. O'SULLIVAN: Okay, thanks, I didn't
9 know that.

10 And Steve, you mentioned the smaller test
11 reactors, say 100 watts or so, but on a larger scale,
12 is there any guidance say for the five megawatt or 10
13 megawatt with respect to the need for groundwater
14 monitoring, or recognizing that there could be leaks
15 and contamination in the subsurface?

16 MR. REESE: I'm going to have to defer and
17 get back to you on that, actually.

18 MR. RAKOVAN: Okay, Mr. Andersen.

19 MR. ANDERSEN: Just a simple clarification.
20 I hope I was clear about it.

21 The remaining 13 percent are currently
22 deep into their evaluations to figure out where to put
23 monitoring wells. So it'll be 100 percent. It's just
24 that you don't - as all of us know, you don't just
25 call the local vendors and say, why don't you come

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1 over to my place and sink a well somewhere.

2 So the intent is, everyone will have some
3 form of groundwater monitoring. It's just that 87
4 percent of them happen to already be there as of right
5 now.

6 Probably within the next year it will be
7 100 percent.

8 MR. O'SULLIVAN: For any of the licensees,
9 if there was a requirement, like let's say for
10 reactors in their decommissioning plan to identify
11 costs for decommissioning for subsurface
12 contamination, currently how would you gather that
13 information?

14 MR. ANDERSEN: Could I ask for
15 clarification? Do you mean to carry that as a
16 separate subset within the estimate of
17 decommissioning?

18 MR. O'SULLIVAN: Yes, Jim had mentioned
19 that in some cases there have been large funds that
20 were not budgeted for at decommissioning that were a
21 result of subsurface contamination. And I'm just
22 wondering, if there was a requirement, or even if a
23 private firm wanted to keep its decommissioning plan,
24 or decommissioning funding plan current with what they
25 expect for the future, how would you gather

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1 information, if you knew there was some subsurface
2 contamination, how would you gather the information as
3 to how much it might cost in the future to
4 decommission?

5 MR. ANDERSEN: Well, let me go back one
6 step first. To my knowledge, the largest increment of
7 additional cost that was associated with a previously
8 unknown condition was on the order of between \$10-20
9 million, and in fact it was closer to ten.

10 So that's a case where the absence of
11 information produced an additional cost.

12 In all the other cases, the information
13 was certainly available to understand - it wasn't a
14 matter of not knowing that there was subsurface
15 contamination. So if there was a mismatch between
16 original estimates and ultimate cost, I'd have to say
17 the mismatch had something to do with the evaluation
18 and the analysis, not with the absence of sufficient
19 information.

20 But in terms of how you would get that
21 information, I'm still not quite understanding what
22 you are asking about.

23 Are you asking sufficient site
24 characterization to be able to make that estimation?

25 MR. O'SULLIVAN: Yes, you mentioned that

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1 the groundwater wells would not be useful for the
2 characterization data?

3 MR. ANDERSEN: I don't want to say that it
4 would not be useful. It's just that they are not
5 intended for that purpose is what I'm trying to say,
6 and if you were to proceed to want to do lifetime
7 characterization of the site, at the level you would
8 do that characterization after you've shut the plant
9 down, it would imply a program that would be very
10 intrusive into the operation; could be very disruptive
11 of the subsurface, and still would be somewhat limited
12 just by the existence of those operational facilities,
13 that you just don't want to go drilling holes right
14 next to them.

15 So I approach it a different way, and
16 that's to look at experience, and to say, what's the
17 magnitude of the impact? And if the magnitude of the
18 impact is a couple of percent of the overall plant
19 decommissioning fund, then what is the driver?

20 It's okay, I get surprised once I shut
21 down, and I say, well, instead of \$600 million, I'm
22 going to spend \$610 million. \$10 million is a lot of
23 money but it's not a lot of money relative to \$600
24 million.

25 So that's the kind of thinking I would ask

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1 you all to take into consideration for each licensee
2 type. What is the magnitude of the possibility that
3 it would lend itself to a legacy site, versus the
4 costs and the complexity associated with gathering
5 data that would truly be useful.

6 And my contention is, I don't think robust
7 site characterization during operation is achievable.
8 I just don't think that's the case.

9 I do think that a much more disciplined
10 follow up to identified events, which constitute a
11 majority of things that contribute to the subsurface
12 component. I mean it's rarely things I didn't know I
13 had; it's more things I knew I had, I just didn't
14 evaluate them thoroughly and properly against
15 decommissioning.

16 I think you are going to buy more progress
17 if you focus in that area, what the follow up to
18 events are. That's where I was going on this.

19 MR. RAKOVAN: Okay, one last comment on
20 this, and then I'd like to just throw out the second
21 topic, just to hopefully get it a little bit.

22 MR. MURRAY: Scott Murray with GE again.
23 One other comment that I think Ralph was also
24 mentioning or trying to mention, if you are estimating
25 the volume of soil, and you miss it one way or the

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1 other, that's typically not what drives the cost
2 overrun in many of the facilities that I've been
3 experienced with. It's the assumption on what you do
4 with the soil after you have it. In other words if
5 your estimate is 5,000 cubic feet is contaminated
6 under the building and you have to deal with that
7 somehow. Typically the cost overruns that I've seen,
8 they have assumed somehow that the soil would either
9 be onsite disposed of, or would be sent to a disposal
10 facility at some rate, and 20 years from now or 30
11 years from now, those assumptions fell apart.

12 It wasn't the volume of the soil that
13 drove the costing number, if they missed it.

14 MR. RAKOVAN: Okay, thank you.

15 I'd like to, since we're coming up on
16 noon, I'd like to just throw out the other topic for
17 this session just to see if we want to have a brief
18 discussion on it.

19 It's what types of surveys would be
20 reasonable under the circumstances to evaluate
21 radiation levels in the facility and in the
22 environment?

23 Take a moment to poinder if you will.

24 MR. NARDI: Joe Nardi with Enercon
25 Services. I'd like to address this one very

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1 specifically, particularly within the facility.

2 The type of surveys you do for operational
3 aspects are oriented toward worker protection and they
4 generally would include airborne monitoring, dose rate
5 monitoring, and removable activity monitoring.

6 Those generally are not going to help you
7 at all during decommissioning, trying to get a handle
8 on what is the cost of decommissioning a facility.
9 The type of monitoring you need are fixed surface
10 monitoring.

11 And in a beta gamma facility, if you
12 probably are not going to be able to make those
13 measurements, not because you can't make them, but
14 because the background is going to drive you out of
15 the picture of what you have to be able to see.

16 My experience has been that even at time
17 of shutdown you are really restricted in what you can
18 monitor on the interior surfaces of a building,
19 relative to the final release criteria, until you've
20 gotten some level of cleanup.

21 And the experience that you do your first
22 level of cleanup and then you find out you have more
23 activity in places you didn't see before, and you keep
24 going through an iterative process.

25 And that is generally true whether it's an

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1 alpha facility or a beta gamma facility.

2 I just can't come to a good example of
3 what I would tell you to require of additional surveys
4 during operation that are really going to help you say
5 what you have to do with respect to decommissioning.

6 You generally know what you are going to
7 have to do with respect to decommissioning. You start
8 from the perspective of the building surfaces are
9 contaminated.

10 The same would be true of monitoring
11 outside the building. You can do some soil sampling,
12 but that's hit and miss. If you try and go outside a
13 beta gamma facility and do a scan looking for
14 releases, your background is going to drive you crazy,
15 and you are not going to be able to see what you have
16 to see for purposes of decommissioning criteria.

17 So I can't come up with something to help
18 you on this one. I just don't know what kind of
19 additional surveys during operation are really going
20 to help you on decommissioning.

21 MR. RAKOVAN: Who has a reaction to that?
22 It sounded like someone on the phone wanted to make a
23 comment on that?

24 MR. EGIDI: Yes, this is Phil in Grand
25 Junction with the Colorado Department of Public

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1 Health.

2 It is very difficult for existing sites to
3 build on what Joe was just talking about, on
4 detection. But if we're looking forward, and we're
5 looking at licensing new facilities, then secondary
6 containment is very important. And then you can do
7 leak detection in your secondary containment as you
8 design it. We have to look no further than our
9 brethren in the RIPRA world on how they do it.

10 So there is plenty of - it may not be the
11 greatest, and some of it doesn't directly correlate,
12 but we've been monitoring for chemical contamination
13 at operation facilities under RIPRA for a long time
14 now, and one of the tricks is leak detection and
15 leachate collection type systems that you design into
16 these facilities, so that you kind of have a buffer
17 before it gets into the general environment.

18 This is all complicated by the
19 stratigraphy of the site. If you have a complex
20 fractured geology, finding that fracture where the
21 groundwater flow is is very difficult - geophysics, et
22 cetera, et cetera, as composed to a typical layer cake
23 type of stratigraphy where it is easier.

24 So it is very difficult but it is doable.
25 But if we're looking forward to prevent legacy sites

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1 in the future, one of the things we should look at is
2 secondary containment with leak systems built into
3 those.

4 MR. RAKOVAN: Okay, thanks.

5 Given the time of the day, if you have a
6 comment, please trying to keep it concise so we can
7 let everybody out in time for lunch.

8 Mr. Brown.

9 MR. BROWN: Roy Brown with Carere. Just a
10 comment in passing. Some of us were talking about
11 this at one of the breaks. It's kind of a comment
12 about waste disposal cost. In the materials facility
13 world, most, probably half of the cost of
14 decommissioning comes in waste disposal cost, and
15 that's obviously very significant. If and when we
16 loose our regional compacts, then the waste costs go
17 way up, that will dramatically impact decommissioning
18 costs as well.

19 MR. RAKOVAN: Thank you.

20 We have a comment from the audience?

21 MR. RANSOHOFF: Jack Ransohoff with Neutron
22 Products.

23 I think that with regard to the first
24 comment or statements, if the regulators will - simply
25 believe the results, there is a lot you can do, even

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1 with a gamma facility, to get a good reading on your
2 decommissioning costs just by monitoring the
3 environment.

4 As far as contamination is concerned,
5 there are almost always areas that have no
6 contamination, and are extensive, that are
7 equidistance from the source of gamma background,
8 which is usually from sky-shine, and so it is
9 practical to using just a bichron detector to survey
10 the soil, and to prepare the soil in the area of
11 interest, in our case, it's the dry pond.

12 And the area downstream of the dry pond,
13 it's not difficult at all to prepare the dose rate as
14 a function of distance above the soil with the
15 background dose rate at an area equidistant from the
16 source. That has no contamination, so it is
17 practical, but to do that the problem that once again
18 I would like to say is if you would put the - and I
19 assume that when people talk about, don't worry about
20 today, worry about 20 years from now, I assume you are
21 not only including in that consideration that things
22 could get worse, but also including decay.

23 I'm not sure whether 20 years from now
24 applies to decay or the thought that things might get
25 worse. But I think it is practical to do it. The

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1 problem is getting the regulators to pay attention to
2 is.

3 MR. RAKOVAN: Thanks. Any additional
4 comments? Drew?

5 MR. PERSINKO: I just want to clarify. I
6 didn't mean to say, don't worry about today.

7 MR. RAKOVAN: Thanks, Drew, I think that is
8 a very good comment.

9 Any other discussion on this? I know you
10 are all eager to get to lunch, but if you have a
11 comment to make, it's all right. Don't be shy.

12 Mr. Andersen.

13 MR. ANDERSEN: I guess I wanted to pick up
14 on Scott's point and also come back to Kevin's
15 question.

16 Where I was really trying to go with that
17 is, that for new facilities, and I don't care whether
18 they're nuclear power plants or other kinds of
19 facilities, it seems to me that the NRC's emphasis
20 should be on implementing the existing 20.1406. If it
21 doesn't apply to enough classes of categories, then
22 you might expand that, that you have a reasonable
23 basis for doing that.

24 But the emphasis should be on prevention,
25 not on successfully estimating the damage after the

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1 fact.

2 For the existing facilities, if NRC is
3 pursuing a path to how to deal with that in terms of
4 preventing legacy sites, then again I guess what I'd
5 suggest is, look at the experience you gain, which is
6 well documented in all the handouts you had, focus on
7 the categories where you have actually had legacy
8 sites, and deal with that.

9 I just don't think that the answer is
10 going to be accomplished by generically requiring most
11 licensees with a potential for subsurface
12 contamination to attempt some form of ongoing site
13 characterization, and translating that into a
14 meaningful change to decommissioning funding.

15 I don't personally, at least for our kinds
16 of facilities, I just don't think you can implement
17 that scale of characterization that will let you
18 achieve that.

19 MR. RAKOVAN: Mr. Brown.

20 MR. BROWN: Roy Brown with Carere.

21 Carere definitely wants to echo that as
22 well. We feel very strongly the same way.

23 MR. RAKOVAN: Any additional discussion?

24 Everybody is hungry? Okay, everybody is
25 hungry.

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1 Okay, by my watch I've got about 10 after.
2 I believe we were set to reconvene at 1:15, so I think
3 we'll just go ahead and try to get things started at
4 1:15 anyhow, even though we're shaving a little bit of
5 time off your lunch. Hopefully you won't have to go
6 far to get it.

7 I'm sure the guys from the NRC will be up
8 here just in case you have any additional discussions.

9 We'll see you at 1:15.

10 (Whereupon at 12:08 p.m. the
11 proceeding in the above-
12 entitled matter went off the
13 record to return on the record
14 at 1:22 p.m.)

15 MR. RAKOVAN: Kevin, did you want to take
16 a moment to discuss that chart that's in the
17 background information before we get things started,
18 as people are settling.

19 MR. O'SULLIVAN: Okay, thanks.

20 In the handouts that I hope everybody has
21 - there are some more out in front - we are on page
22 five on the talking points handout, which shows a
23 comparison of financial assurance requirements for
24 reactors, and it goes down the Part 50 column, the
25 independent spent fuel storage installations, which is

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1 the Part 72 column, in materials licensees, which is
2 the other column.

3 We have heard from stakeholders in the
4 past that a comparison table like this would be
5 helpful, so we included one to start the afternoon
6 session. What we will be talking about this afternoon
7 are several financial instruments near the bottom of
8 the table - the escrow, and the line of credit, which
9 are prepayment mechanisms. We'll also be talking
10 about the guarantees.

11 We will also be talking about proposed
12 additional decommissioning reporting requirements. If
13 you have questions on the information in this table,
14 we can talk at the break, or you can raise it to Lance
15 as a parking lot issue.

16 But we really didn't want to talk about
17 the regulations. We wanted to get your input on a
18 technical basis on the guarantees and the escrows and
19 the line of credit and the topics that we have later.
20 So I will get into that, with the background on that,
21 in a second. But I wanted to reemphasize the fact
22 that people's discussion here is going into the
23 technical basis for the rulemaking.

24 We have a transcriber, and our working
25 group is going to be going over everything that is

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1 said here, and we are going to be posting the summary
2 notes of this meeting probably I would think by the
3 middle of February. And if you would like to receive
4 a copy of that, you can either contact me and I'll
5 email it to you, I don't think it makes any sense for
6 everybody to keep trying to see when that is
7 available. So however you think is the best means of
8 me getting that summary notes to you, just go ahead
9 and email it or call me.

10 MR. RAKOVAN: Thanks.

11 Before we started in with the afternoon
12 session, we had some shuffling around at the table.
13 And I just wanted to go around quickly, and just have
14 anyone who has joined the table just introduce
15 themselves quickly, and just let us know what group
16 you represent.

17 If we could start with Mr. Ernst.

18 MR. ERNST: John Ernst, University of
19 Missouri, and I'm representing TRTR in Steve Reese's
20 place this afternoon?

21 MR. RAKOVAN: Did you guys hear that at
22 all?

23 Okay, you are going to have to speak into
24 that mike a little more, John.

25 MR. ERNST: I'm John Ernst from the

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1 University of Missouri, and I am representing TRTR in
2 place of Steve Reese this afternoon.

3 MR. RAKOVAN: Thank you very much.

4 MS. WHEELER: Jennifer Wheeler, Nuclear
5 Fuel Services.

6 MR. RAKOVAN: Back of the room? Yes, no?

7 MS. WHEELER: Okay, Jennifer Wheeler,
8 Nuclear Fuel Services.

9 MR. RAKOVAN: Okay, I'm going to my back of
10 the room guys to get a nod. Okay, thank you.

11 MR. MURRAY: Scott Murray, GE Nuclear.

12 MR. RAKOVAN: Thank you, sir.

13 Just to make sure that we have people on
14 the phone still?

15 MR. FREDRICHS: I'm Tom Fredrichs from the
16 NRC.

17 MR. RAKOVAN: Sorry about that, Tom.

18 MR. FREDRICHS: No problem.

19 MR. RAKOVAN: Do we have anyone on the
20 phone at this point?

21 MR. CONLEY: Kansas, OAS, and CRCPD.

22 MR. RAKOVAN: Okay, Tom.

23 MR. EGIDI: Phil Egidi, radiation
24 management unit.

25 MR. RAKOVAN: Great to have you still,

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1 Phil.

2 MS. FIELDS: Sarah Fields, Sierra Club,
3 Moab, Utah.

4 MR. RAKOVAN: Welcome back, Sarah.

5 MR. CLOUD: Paul Cloud, U.S. Army.

6 MR. RAKOVAN: Okay. Anyone else on the
7 phone line that is full participation?

8 Okay, I guess I will turn it back over to
9 Kevin to introduce the first topic.

10 Just to let you know, there were a few
11 other topics that were in the material that were
12 handed to you. Since the discussions were going so
13 well at the time, we decided to kind of forget that.
14 But in talking with our coworkers at the NRC at lunch,
15 we realized that we pretty much covered at least to
16 their satisfaction the issues that were being
17 discussed.

18 If there is something in that particular
19 topic that you did want to discuss, we will have time
20 at the end of the meeting to bring that up. So just
21 make a note of it, and once we are done with the
22 financial assurance type stuff, then we'll get back to
23 that.

24 Having said that, Kevin?

25 PROPOSED REGULATORY CHANGE TO REQUIRE COLLATERAL

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1 MR. O'SULLIVAN: Okay, we're now on page
2 six of eight of the handout.

3 It's a proposed regulatory change to
4 require collateral to secure apparent company
5 guarantee or a self guarantee.

6 The background information here has got
7 one bullet on it. The background information
8 identifies the parent company guarantee, and the self
9 guaranteed financial assurance mechanisms.

10 It describes these are unsecured, promises
11 to pay decommissioning costs.

12 It states that they are vulnerable to
13 attachment by creditors. It states that placing a
14 collateral requirement on these guarantees will
15 increase the likelihood that these funds will be
16 available when needed for decommissioning.

17 So what this does is, it raises one issue.

18 MR. RAKOVAN: Okay, so the issue we'd like
19 to discuss to start out the afternoon is, what are the
20 approximate costs and benefits of requiring collateral
21 to secure the funds promised in a PCG or parent
22 company guarantee, and SG, or self guarantee.

23 I know everyone had lunch, everybody is
24 digesting, that's okay.

25 MS. FIELDS: This is Sarah in Moab. And

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1 I'd like to discuss a little bit what happened with
2 the Moab mill situation.

3 MR. RAKOVAN: Sarah, I'm sorry, but we
4 specifically didn't want to talk about site specific
5 issues.

6 MS. FIELDS: No, as far as problems that
7 need to be addressed. I feel I'm being on topic.

8 Because it exhibited some difficulty
9 having to do with collateral when the company went
10 bankrupt, and the NRC went to collect on the surety,
11 Atlas Corporation for its loan had used collateral for
12 two different loans, so in the end the NRC was only
13 able to collect 80 percent of the amount of the
14 surety.

15 So you have to be sure the collateral is
16 only going to be used for that one surety, that there
17 isn't something else going on with the same
18 collateral.

19 Also, a related issue is how do you use
20 the surety once you have collected on it, and I don't
21 know if this is the place to talk about that. But for
22 a Part 40 facility, there is enough that's said that
23 all that money must be used for actual reclamation, so
24 with the Moab mill, about 40 percent of that money was
25 actually used for reclamation. This was before it

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1 went over to DOE. And the rest of the money was spent
2 on lawyers for the Atlas Corporation, and for the
3 administration of the trust.

4 So there are a lot of other little
5 financial glitches in there, which result in very
6 little money from the surety actually going to
7 reclamation.

8 Thank you.

9 MR. RAKOVAN: Thank you for your comment.

10 Does anyone want to build on that?

11 MR. EGIDI: This is Phil in Grand Junction.

12 We have an increased security control
13 licensee negotiating increasing their surety. And
14 they wanted to come in with collateral to meet that
15 differential, and if the collateral is real property,
16 there could be an issue there, because at least with
17 the agreement states, we would have to have full and
18 complete control over that collateral, and that
19 becomes problematic there.

20 So the concept of collateral probably has
21 a lot of merit, but the devil may be in the details,
22 and I encourage you to look at what strings would come
23 attached if real property is used as part of the
24 collateral.

25 Thank you.

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1 MR. RAKOVAN: Thank you.

2 I have a comment from the audience, if you
3 could please identify yourself.

4 MR. NEUMAN: Jeff Neuman, Honeywell
5 International, Inc.

6 Maybe just one question: Is this
7 collateral requirement going to be for creditworthy
8 licensees as well as noncreditworthy licensees? In
9 other words is this going to replace any kind of
10 financial test?

11 And a second question is, is it
12 contemplated that licensees could use the assets which
13 are licensed themselves, as part of the collateral, or
14 do these have to be other assets?

15 If you do have a collateral requirement
16 that is going to require some kind of ongoing
17 monitoring of the value of the collateral, so query
18 whether you actually get any additional benefit other
19 than a financial test for the parent company, because
20 collateral values go up and down in the same way that
21 the creditworthiness of the licensee can go up and
22 down.

23 So a couple of different questions, if you
24 could respond to those.

25 MR. FREDRICHS: This is Tom Fredrichs at

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1 the NRC. The idea would not - we would still have a
2 financial test. That wouldn't change. We would add
3 on to that a collateral requirement, the idea being
4 that in the event of bankruptcy, perhaps, that even if
5 a firm has promised the funds for use in
6 decommissioning, the bankruptcy court has the
7 authority to hold payment of those, which would delay
8 decommissioning.

9 The other thing, of course, is that there
10 may be so many creditors, particularly secured
11 creditors, that the assets that are left over after
12 the division may not be sufficient.

13 So the thought was that with a secured
14 position the NRC would be more assured of having
15 enough money even in an extreme case where there is a
16 bankruptcy, so that's the thought behind it. The
17 company would still have to be creditworthy from a
18 financial test point of view.

19 As far as monitoring the type of
20 collateral, we would anticipate probably taking
21 collateral that is in the form of a revenue stream
22 rather than real property or depreciable assets,
23 simply because they are easier to administer.

24 And then finally, of course, he did bring
25 up the fact that collateral does have to be monitored.

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1 The security agreements have to be renewed on a five-
2 year basis. It's all through state offices that this
3 has to be done. So there are some monitoring costs to
4 the NRC at least in doing this.

5 So these are all things that we are
6 looking for comment on, and things we will have to
7 evaluate as to whether or not we actually use
8 collateral.

9 MR. RAKOVAN: Did that answer your
10 question? Please step up to the microphone if you
11 would.

12 MR. NEUMAN: Just some follow up thoughts
13 on that. For companies that are creditworthy, and I
14 was kind of curious as to your statement, where you
15 would take collateral and cash-generating assets as
16 opposed to real property. And I'm not sure in the
17 world of secured credit how exactly that would work.

18 But for licensees that are otherwise
19 financially creditworthy to ask them to grant to the
20 NRC, the agency, a lien ahead of any other creditors
21 would place considerable operating constraints on
22 licensees.

23 I haven't done a cost-benefit analysis as
24 to whether some kind of LOC, or other kinds of
25 financial backstop is cheaper. But it could

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1 substantially raise the cost of borrowing for the
2 licensees who rely on those assets to fund their other
3 businesses, and to fund improvements and safe
4 operations at the licensee facility.

5 So that certainly is going to impose a
6 great deal of cost on licensees that are somewhat
7 difficult to quantify, but nonetheless are there.

8 So maybe just to get back to my question,
9 when you talk about getting collateral on certain
10 kinds of cash generating assets, what specifically did
11 the commission have in mind?

12 MR. FREDRICH: This is Tom Fredrichs. The
13 idea is more revenue streams, not necessarily assets.
14 Things like accounts receivable, or perhaps even
15 inventory; things that are very liquid could easily be
16 turned into cash to fund a trust fund.

17 As far as - so the thought was, we are
18 probably not interested in things like real estate, or
19 other things that might be time consuming or difficult
20 to dispose of and turn into cash.

21 MR. NEUMAN: I would just reiterate my
22 concern there. Because even corporations such as
23 Honeywell which are single A rated, recognized as
24 being financially creditworthy, rely on inventory and
25 accounts receivable and things like that for a great

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1 deal of their working capital.

2 So for the agency to step in and take the
3 lead on that would impose a pretty severe hardship on
4 operating, and maybe Honeywell is in a slightly unique
5 situation. But to the extent that we are operating a
6 variety of unregulated businesses, to have that kind
7 of burden imposed on those other businesses is going
8 to make it difficult to maintain a nuclear facility
9 within a corporate umbrella. And I'm not sure
10 necessarily that's what the NRC would intend, because
11 I think getting corporations that have a broad base,
12 all kinds of financial resources available to them are
13 likely going to be able to fund decommissioning costs
14 more in a better way than an entity that's solely
15 involved in the nuclear activity.

16 MR. RAKOVAN: Mr. Brown.

17 MR. BROWN: With the Carere member
18 companies, once again - this is Rob Brown with Carere
19 - once again these are radiopharmaceutical
20 manufacturers, and biomedical radionuclide
21 manufacturers. Some of these companies are very, very
22 large. They have small subsidiaries that do this
23 work, but they are companies you know. GE Health Care
24 is obviously a subsidiary of GE. Brocko Diagnostics
25 is a subsidiary of Brocko, the big pharmaceutical

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1 company. These are fairly good sized companies. Tyco
2 Health Care, a subsidiary of Tyco. These are large
3 companies that, the personal guarantees of the
4 company, the company guarantees, are very worthwhile.

5 To require a collateral to go along with
6 those self guarantees would be very, very expensive.
7 Whether we are looking at a letter of credit or
8 collateral, it could run something on the order of
9 eight to 10 percent, and if you are looking at \$20-50
10 million decommissioning for a site, that is a lot of
11 money, and that is money that could be spent on ALARA
12 and other things that are much more valuable than the
13 risk for one of these very large companies going belly
14 up and not honoring the decommissioning funding.

15 So we are very opposed to doing away with
16 the self assurance or the self guarantee. We are very
17 opposed to requiring collateral, because there is some
18 costs associated with that.

19 MR. FREDRICH: I would like to say that we
20 are not thinking of doing away with the self guarantee
21 or the parent company guarantee. They would still
22 exist. What we are considering is whether or not we
23 could increase the assurance that funds will be there
24 by adding a collateral requirement to that.

25 And these are the sorts of comments we

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1 want to hear as to what the burdens would be of
2 providing that.

3 MR. RAKOVAN: Ms. Langhorst?

4 MS. LANGHORST: A question I had as I was
5 reviewing the documents was, this is one avenue for
6 you all to be relatively assured the funds are there,
7 and available for decommissioning funding. Did you
8 look at any other alternatives? Are there other ways
9 to make sure that that is one of the first things, the
10 highest priorities, that the funding can go to?

11 MR. FREDRICH: I'm not sure exactly what
12 the question is. It's up to a licensee to decide
13 whether or not they want to use one of these
14 mechanisms. And there is a letter of credit. There
15 is a trust fund, and other ways.

16 MS. LANGHORST: My question is, my
17 understanding is, you are wanting to explore this
18 collateral to make sure that for a self guarantee or
19 a parent guarantee that the money has not higher
20 ranking - I'm sorry, I'm not a financial person - but
21 has a higher probability of going to decommissioning
22 rather than to other creditors.

23 And my question is, is that the only
24 avenue you have? Or are there other ways that the NRC
25 can make sure that someone who self guarantees, that

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1 environmental concerns, decommissioning costs, are
2 ranked up there in the bankruptcy law? Sorry, I'm not
3 a financial person. That is my attempt at a question.

4 MR. FREDRICH: Okay, so basically, keeping
5 the parent company guarantee, is there something else
6 we could do other than collateral to enhance the
7 likelihood of payment?

8 And we couldn't find another way. I mean
9 either you are going to trust the parent company
10 guarantee, and perhaps trust the bankruptcy court to
11 make sure that those environmental obligations are
12 funded, or we can go around - that's used in a lot of
13 different places. I mean when you make a home
14 mortgage your collateral is your house.

15 So those were the basic choices, either to
16 require it or not pretty much.

17 MR. RAKOVAN: I've got someone standing at
18 a mike?

19 MR. HAEMER: Budd Haemer of Pillsbury
20 Winthrop Shaw Pittman. And as a lawyer I'd be happy
21 to explain to Ms. Neuman how you structure the
22 financing that they are talking about.

23 But I think that you have to recognize
24 that most mez financing comes across as being higher
25 risk than real estate financing, reflected in the

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1 rates that people pay.

2 But my comment is, I'm not sure why from
3 a bankruptcy standpoint you are lumping parent
4 guarantees in with self guarantees.

5 If the subsidiary goes bankrupt, the
6 parent guarantee isn't going to be reached in that
7 bankruptcy proceed. I mean it would be specific to
8 why it's a parent guarantee. So I'm not sure why
9 we're lumping them as the same.

10 If you have a concern with bankruptcy, I
11 can understand.

12 MR. FREDRICH: Well, the concern in the
13 parent company is, the parent company itself could go
14 bankrupt. And then the subsidiary, if it was relying
15 on the parent company guarantee, may or may not have
16 resources of its own to pay for decommissioning. So
17 that was the thought behind looking at the parent
18 company guarantee.

19 MR. HAEMER: I mean I guess the most recent
20 example would be Enron and Portland General Electric.

21 MR. CLOUD: Excuse me, could you speak up
22 or speak into the microphone a little bit better?

23 Thank you.

24 MR. HAEMER: I was just saying that the
25 most recent example of a parent going bankrupt would

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1 be Enron and Portland General Electric example, and I
2 think the arguments that the industry has expressed
3 about a guarantee from a creditworthy parent is worth
4 more than an attachment on a stream of revenue is
5 certainly true, especially if you consider the
6 administrative cost of perfecting those claims against
7 accounts receivable.

8 People pay me a lot of money to do that,
9 and that's a significant cost considering the
10 complexity of the legal work involved.

11 MR. RAKOVAN: Okay, whoever gets to the
12 mike.

13 MR. RADDATZ: Hi, good afternoon, my name
14 is Michael Raddatz.

15 I have a question on the fact that we are
16 going to look at adding additional collateral
17 requirements, it still seems to beg the same question.
18 Either the parent company guarantee is useful or it's
19 not, and strengthening the requirements for the parent
20 company guarantee, whether you are using your Moody or
21 your bond rating, would seem to make more sense than
22 attempting to add a level for complexity in doing a
23 collateral stream, or attempting to find out how we
24 are going to - adding a whole other set of analyses
25 for load up when we could do it up at the top, and

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1 just decide that using accepted codes is standard,
2 which is an agency position, to use an external
3 control that says if a company has a bond rating of at
4 least X, and sufficient resources - whether we'll get
5 into the other parts later - whether they are real or
6 tangible or intangible - would be a better way of
7 looking at it than attempting again to add another
8 complexity to it.

9 And if they fall below that, then they
10 would have to find another method of guarantee.

11 MR. FREDRICHS: Well, to respond to that,
12 we still think that the parent company guarantee and
13 the self guarantee is useful, and the financial test
14 will still be in place, and if they fall below a
15 certain creditworthiness, they will still have to go
16 into another instrument.

17 It is designed, probably primarily, in the
18 event that there is a bankruptcy, and at that point
19 the credit rating is irrelevant, because they are in
20 bankruptcy, and the question becomes, will there be
21 enough money after the secured credit holders are paid
22 off to pay for the decommissioning?

23 And one way to improve the public's
24 position in that is to give them a secured position,
25 so that - because the secured credit holders are

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1 always paid first, that that would be among those
2 first payments.

3 So that is the thought behind it. And the
4 question is, well, it is more complex. There is
5 monitoring. Whether it impacts on the business and
6 the credit that they can use for other things, these
7 are all things we want to evaluate, and the more we
8 find out about it, the better job we'll do of making
9 that balance and deciding whether to do it or not.

10 MR. RAKOVAN: Okay, I'm going to go to
11 Scott Murray at the table, and then to the audience.

12 MR. MURRAY: Yes, I was just going to add
13 to the previous commenter I guess from the NRC. I'm
14 wondering if we are trying to solve a problem that may
15 not even exist.

16 At least for General Electric. We are a
17 AAA bond rated company, very, very large; highly
18 unlikely that we are going to go bankrupt. And to add
19 to one of the other gentlemen, for us to put up a
20 collateral in addition to our company assets to us
21 makes absolutely no sense at all. Again, why would we
22 need to do that.

23 The comment, the person made, why don't
24 you look at your criteria, when you look at the parent
25 in the self guarantee, you will have bond ratings for

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1 parent all the way down to BBB. To us that doesn't
2 give us a warm feeling that that company is that
3 financially sound, if they can have five different
4 levels of bond rating.

5 For self guarantee, it goes all the way
6 down to A, a single A rating.

7 Again, I would suggest that you might want
8 to look at that rating criteria, rather than simply
9 require a secured collateral fund in addition to the
10 parent itself.

11 Because for many large companies, many
12 large companies that are capable of passing that
13 financial test, and capable of demonstrating their
14 worth, the collateral is almost irrelevant.

15 MR. RAKOVAN: Thanks.

16 MR. RASONHOFF: I think you have to rethink
17 the whole program.

18 First of all I think there is a real good
19 chance that it violates the Atomic Energy Act. The
20 intent of the Atomic Energy Act was to end the
21 government monopoly on atomic energy, and encourage
22 competitive free enterprise to pick up the slack.

23 And now you have a program that probably
24 doubles or triples the investment required in building
25 a new plant or in starting up one.

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1 And you - when you turn - when you turn
2 this kind of question over to regulators, state
3 regulators, federal regulators, whoever, they go to
4 consultants, and they come up with these huge costs,
5 estimated costs of decommissioning which sometimes
6 frequently exceed the original costs of the plant,
7 what you are doing is actively discouraging what the
8 Atomic Energy Act encouraged.

9 The problem here is that the NRC has done
10 a terrible job of licensing waste disposal sites. Get
11 your criteria for waste disposal to the point where it
12 is responsible and practical, okay, and encourage
13 competition in waste disposal, and the whole costs of
14 decommissioning gets to be very inexpensive.

15 Stop regulating inconsequential quantities
16 of radioactive material, including the shipping of it.

17 MR. RAKOVAN: Can we just let him finish
18 his statement. If you could summarize.

19 MR. RASONHOFF: And encourage both the NRC
20 regions and the states to encourage - to observe
21 Appendix D to your regulations, which permits small
22 companies to self assure, and then permit them - the
23 concept that you have is, in order to decommission,
24 you have to shut down first.

25 We got shut down - we had a million dollar

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1 a year cash flow, and we filed a decommissioning plan
2 to decommission - to online decommission, decommission
3 while we continued to operate, and use the cash flow
4 from the operation of that plant to fund the
5 decommission.

6 Our regulators went out and got a cost
7 estimate of \$20 million to decommission our plant. We
8 had a practical plan to do it using \$100,000 a year
9 out of cash flow. And they shut down the principal
10 source of cash flow.

11 And so what you do is, you adopt these
12 regulations. You don't do the things you need to do
13 to make decommission inexpensive.

14 MR. RAKOVAN: Sir?

15 We're trying to stop what you are doing
16 there. We're looking for input. That's what we're
17 looking for, we are looking for input here.

18 MR. RASONHOFF: Stop catering to the anti-
19 nuclear activists, and start doing your job. Which is
20 to regulate the industry so that it's safe.

21 When before the AEC was split up, the
22 lowest level -

23 MR. RAKOVAN: Sir, I'm sorry to keep
24 interrupting you, but the topic on the board is the
25 appropriate costs and benefits of requiring collateral

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1 to secure the funds promised.

2 MR. RASONHOFF: It's a terrible idea.

3 MR. RAKOVAN: Okay, thank you. That is
4 what we're looking for.

5 There was a comment from the phone?

6 MR. CONLEY: Yes, I just wanted to amplify
7 that last comment. Apparently it's a little off
8 topic. But I resemble that remark.

9 I am the state regulator that comes up
10 with these high estimates by using the RS means
11 manuals and probabilistic analysis. But I have to
12 concur with him completely. If you can manage waste
13 disposal costs, and you can keep the amount of
14 accumulated wastes at a lot of these facilities under
15 control by license condition or other method, the cost
16 of the financial assurance could be reduced
17 substantially. I have to concur with him on that
18 point, absolutely. And it's imperative that you
19 understand that as we go forward, whether it's on
20 collateral or LLCs or increased security controls.

21 MR. RAKOVAN: Okay, thank you.

22 If there is - one last comment before we
23 move on?

24 MR. HORIN: Okay, one last comment. I'm
25 Bill Horin with Winston & Strawn. We also have a

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1 situation where we have some power reactor licensees
2 that also have materials licenses, and to suggest that
3 a large power reactor licensee should also add on
4 collateral to their guarantees or whatever they are
5 using for their materials license decommission
6 insurance really oversteps - it overreaches I think
7 what really needs to be considered.

8 You are talking about large companies,
9 utilities, that have decommissioning obligations for
10 their plants of hundreds of millions of dollars, and
11 the cost of decommissioning the materials license
12 activities are relatively small. And to suggest that
13 they also on top of that need to put on collateral I
14 think would be an unreasonable approach.

15 MR. RAKOVAN: Thanks for your comments.

16 Mr. Boeldt?

17 MR. BOELDT: Eric Boeldt, Penn State.

18 I was talking to one of my financial
19 people about a month ago, and she was wondering why
20 the NRC was all beat up about this chump change that
21 the guarantee was for.

22 The radioactive portion of our license is
23 so small compared to the overall operations that it's
24 just - she could write a check for that amount, and
25 she wasn't even one of the senior vice presidents.

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1 So the point is, decommissioning was a
2 very small part of our operations. So to add
3 collateral would just sort of be insulting almost.

4 MR. RAKOVAN: Okay. Unless there is
5 pressing comments that need to be made, I'd like to
6 move on to the next topic.

7 It's up to you, Kevin.

8 MR. O'SULLIVAN: Well, I'd just invite a
9 few comments with respect to the cost of collateral.
10 I heard a comment back there about the eight to 10
11 percent. And I'm hearing from Eric here a very low
12 number. But if the firm is at the A bond rating, or
13 BBB, I mean are we looking at those type of costs for
14 collateral? They seem a little high to me.

15 MR. RAKOVAN: Do you want to address, Mr.
16 Murray?

17 MR. MURRAY: Scott Murray from GE. I
18 cannot address the actual cost of collateral. But the
19 comment the gentleman made I think is very valid.
20 What you are really doing is taking out revenue
21 streams from either shareholders or the ability to use
22 elsewhere. It's not just the cost of putting that
23 money in a bank account some place. It's the removed
24 or loss of revenue, and the use of that revenue for
25 investment or expansion or cleanup or whatever.

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1 MR. RAKOVAN: Comment from the audience?

2 MR. HAEMER: Budd Haemer from Pillsbury
3 Winthrop Shaw Pittman. I would add that securing a
4 stream like accounts receivable is complicated, and
5 the underlying documents that go with the accounts
6 receivable, the contracts, the purchase order, I mean
7 that is a significant administrative cost on a 20 or
8 30-year basis to go back and make sure that every time
9 one of those documents change that you have filed the
10 necessary security paperwork.

11 So I think when you are thinking about
12 collateral, you are not thinking about a real asset,
13 you are thinking about some sort of fungible asset,
14 there is a significant ongoing administrative cost
15 that shouldn't be minimized for the amount of money
16 that you are talking about.

17 In the alternative, if you can simply rely
18 on creditworthy parent or a creditworthy company to
19 simply manage their business properly, and perhaps put
20 in some triggers to indicate that perhaps they are
21 running into some sort of problem as being a more
22 appropriate regulatory stream than the administrative
23 costs.

24 Of course now I'm arguing against my
25 interests, because if you do this to these guys they

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1 are going to have to pay me to do it.

2 MR. RAKOVAN: Interesting comment.

3 Anything else on this topic before we move
4 forward? I see a hand. If you could approach the
5 mike and identify yourself, please.

6 MR. WEISS: Sy Weiss, consultant for
7 nonpower reactors and TRTR. The university and
8 commercial and the government nonpower reactors
9 generally are in very good shape. The three reactors
10 or so that the government owns you have the commitment
11 of the government to decommission it.

12 You have a couple of industrial reactors,
13 I think GE is one, another large corporation is
14 another. There's substantial backing to keep these
15 facilities running, and to decommission them.

16 Universities, state universities that have
17 the backing of the state to take care of
18 decommissioning when the proper time comes.

19 Those private universities that still have
20 reactors, generally they will take some of their
21 endowment, put it in a separate fund that they can't
22 use, and use that for decommissioning.

23 I guess the point I'm trying to drive at
24 is, I don't think the research and test reactor
25 community should be considered in this.

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1 MR. RAKOVAN: Thanks.

2 Okay, unless I see a hand go up or hear
3 someone with a comment.

4 MR. EGIDI: One more.

5 MR. RAKOVAN: Okay, one more. But this is
6 it.

7 MR. EGIDI: To amplify the cost, somebody
8 said something about eight or 10 percent, our
9 experience in Colorado for some of these material
10 licensees that don't have the greatest credit rating,
11 that is a gross underestimate of what surety is
12 actually costing them. And we are finding that if
13 they can get somebody to underwrite surety or a letter
14 of credit, it may often be at much, much higher rates,
15 and this is seriously constraining the ability of
16 licensees to even secure financial assurance.

17 So the cost, especially post-9/11 are a
18 reality that we are really going to have to factor in
19 is, can these licensees even buy surety.

20 MR. RAKOVAN: Thanks, Mr. Egidi.

21 I really want to move on to the next
22 topic. Are you okay with that? If you are going to
23 make a comment, better make it quick.

24 It's up to you. Just make it quick
25 please.

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1 MR. RASOHOFF: Part of the problem for
2 small companies is, when small companies do big
3 things, part of the problem is that the back of this
4 requirement means that fundamentally what you are
5 requiring is cash equivalent collateral. And it's
6 literally 100 percent cash collateral that you are
7 requiring.

8 MR. RAKOVAN: Okay, thank you.

9 All right, Kevin, move forward please.

10 REVISING THE NET WORTH DEFINITION

11 MR. O'SULLIVAN: Okay, we're to go to 2:15
12 on these three topics within the agenda. The second
13 topic - we're on page six of eight still in the
14 handout - deals with revising the net worth
15 definition.

16 And the background information for this
17 session identifies that some firms have a large
18 portion of their net worth as intangible assets. And
19 questions whether the definition of net worth in
20 financial tests for a parent guarantee and self
21 guarantee should be changed to allow intangible
22 assets.

23 This raises the following issues.

24 MR. RAKOVAN: Okay, there are two specific
25 issues that we wanted to discuss under this topic.

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1 The first one is, what are the benefits
2 and costs of allowing the inclusion of intangible
3 assets in the net worth requirement for the PCG and SG
4 financial tests?

5 What are the appropriate methods of
6 evaluation for intangible assets?

7 And the second would be, if intangible
8 assets are included, will the risk of default increase
9 for the - I'm sorry - oh will the risk - I apologize
10 - of default increase for a PCG and SG?

11 So let's hit that first one if we can.
12 Anyone at the table want to take a first shot at this
13 particular topic? Still feeling kind of quiet.

14 Well, that's okay, we've got someone from
15 the audience coming up.

16 MR. NEUMAN: Jeff Neuman from Honeywell
17 International.

18 This is one where Honeywell feels that
19 there are huge benefits to moving away from a tangible
20 net worth test and including intangible net worth.

21 Tangible net worth is somewhat of an
22 anachronistic way of evaluating companies. And
23 looking at a company holistically in terms of its cash
24 flow generation and other kinds of financial tests is
25 much more appropriate.

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1 In terms of including intangible net
2 worth, the accounting literature and accounting
3 requirements in terms of FAS 142 have evolved to the
4 extent where no longer is the valuation of intangible
5 net worth kind of wipe your finger and stick it in the
6 air. Companies have to annually review their
7 intangible net worth, and disclose to their
8 shareholders whether intangible net worth has been
9 impaired or not and write it down.

10 So it's a real number that reflects real
11 business value and cash generating ability, and
12 because of the way large conglomerates especially like
13 Honeywell and I imagine GE today too grow their
14 businesses through acquisition, they are required to
15 take on large amounts of intangible net worth which
16 can in some instances make it difficult for them to
17 meet the tangible net worth test.

18 And discounting that amount of intangible
19 net worth is not fair to the company, and can have the
20 effect of inadvertently penalizing them where there is
21 indications that the bond rating and other kinds of
22 financial indicators that show that companies can in
23 fact fund a decommissioning.

24 So I would say if the NRC would move to a
25 similar test, and could in fact just adopt FAS 142 as

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1 a method for allowing companies to value their
2 intangible assets, that would be as good a proxy
3 indicator of financial creditworthiness as the
4 tangible net worth test.

5 MR. RAKOVAN: Mr. Brown.

6 MR. BROWN: For many drug companies
7 intellectual property is very, very important, and
8 intellectual property may include patents, FDA
9 approvals. And it's quite common for FDA approvals,
10 and these are new drug applications, can sell for
11 seven figures easily, and some of the major companies
12 have 20, 30, 40 new drug applications.

13 So some of these assets are very, very
14 valuable, and very very liquid. These are bought and
15 sold all the time.

16 In some cases these FDA approvals are sold
17 years after they are even used. There was one NDA
18 recently sold I think it was almost 10 years since it
19 has been used.

20 So these have values. They hold values.
21 They are very liquid. Just because they are
22 considered intangible doesn't mean they don't have an
23 intrinsic value. So these are very, very important,
24 and really should be included.

25 MR. RAKOVAN: Thank you.

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1 Any further discussion? If you would like
2 to give a specific example, please approach the mike.
3 Again, I'd just ask you to keep it concise.

4 MR. RASOHOFF: If you deal only with
5 hardware, the existing hardware, things like that,
6 real property, buildings, and so on, take a new
7 company that builds a radiation processing plant for
8 example, and it's got a new process that it is
9 launching, you have no experience with it, it has a
10 very high book value.

11 Take an older company that has built a
12 plant, maybe the way we did, one piece at a time,
13 until we invested \$25 million total in it, and you
14 look at the book value, if the company uses a high
15 rate of appreciation, which is a conservative means of
16 accounting, it has a low book value. But from a net
17 worth standpoint, it has a going businesses, it has
18 proven properties - processes, and plant and
19 equipment; it's got trained employees; it's got all
20 the software that works; and it's got customers and
21 it's got cash flow.

22 And you take a company like that, and you
23 look at its book value, and we did, you could have a
24 book value of \$2-3 million, and a cash flow of a
25 million dollars a year.

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1 So if you are going to use book value as
2 a basis instead of net worth, and things like cash
3 flow versus liabilities, and things like that,
4 Appendix D properly interpreted is pretty good.

5 But it talks about net worth. And people
6 at the NRC in this program have net worth confused
7 with book value, and it makes a huge difference.

8 So there is a lot of work to do before you
9 start increasing the demand for cash equivalent
10 collateral.

11 MR. RAKOVAN: Thank you.

12 If there is no other discussion on this
13 particular issue, we can move on to the second
14 question.

15 Okay, if intangible assets are included,
16 will the risk of default increase for PCG and SG? Is
17 there any discussion on this topic?

18 If intangible assets are included. Does
19 anyone from the NRC want to step in and see if we can
20 focus the question a little differently, or if there
21 is any particular aspect of the question that we want
22 some information on.

23 MR. FREDRICHS: I think the motivation
24 behind the question is whether or not the value of
25 these intangible assets, patents or goodwill, might be

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1 more prone to a sudden devaluation as compared to more
2 traditional bricks and mortar type assets.

3 I think some of the comments that have
4 been made suggest that they hold value over time, as
5 Roy Brown mentioned. But that was the idea behind the
6 question. I mean if there are no comments, we're not
7 sure if you are thinking yes or no in response to the
8 question.

9 MR. O'SULLIVAN: If I could follow what Tom
10 said, too, I understood from the Honeywell comment
11 that acquiring intangible assets should make it more
12 difficult you were saying to pass a parent guarantee
13 or a self guarantee?

14 MR. RAKOVAN: That would be a yes.

15 MR. NEUMAN: And that's only if you are
16 using the tangible assets for the acquiring, isn't it?

17 MR. RAKOVAN: If you are going to have a
18 discussion, come to a mike, please.

19 MR. O'SULLIVAN: So I don't understand how
20 getting more intangible assets by growing the firm is
21 going to make it more difficult to pass the guarantee
22 test.

23 MR. NEUMAN: Well, because you use cash to
24 make acquisitions and grow your business. But the
25 question isn't whether, as a matter of a ratio,

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1 whether you should include intangible assets or not
2 was what I was focused on.

3 And I guess my response, and it's really
4 - this part of the question is, tangible and
5 intangible assets can fluctuate in value, and publicly
6 reporting companies today are required to test
7 annually the value of their intangible tests in an
8 impairment test. And they are not necessarily
9 required to do that for tangible assets. Those are
10 recorded at historical costs less depreciation, and if
11 you have a piece of real property located in Florida,
12 in Dade County somewhere, it can be worth a lot of
13 money one day, and suddenly not be worth so much.

14 So I don't think there is anything
15 inherently more creditworthy about a tangible asset
16 test versus an intangible asset test. And a gentleman
17 from a drug company pointed out these intangible
18 assets can have incredible value, and now that there
19 is more rigor around the testing of that value
20 annually, I think it would be acceptable.

21 And I wouldn't think that it would
22 increase the risk of default, and I'd like to back
23 some of the comments others have made about the
24 appropriateness of bond rating for that, and there is
25 a huge amount of data out there about the risk of

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1 default for a given credit rating.

2 And I think for a single A company which
3 Honeywell is, you know, you are talking about
4 something, you know, a point zero three percent chance
5 of a bankruptcy over 30 or 40 years of data
6 collecting, so I would think that would be the most
7 important indicia of credit quality. Relying on the
8 value of tangible or even intangible assets I don't
9 think is as reliable.

10 MR. RAKOVAN: Thanks for that.

11 Okay, not too many NRC discussions here,
12 but go ahead.

13 MR. RADDATZ: This is a general comment,
14 though, because we are dealing with these issues
15 everyday right now.

16 Again, this is Mike Raddatz. When you
17 talk about the devaluation or value, the value of an
18 intangible asset, a single intangible, such as, for
19 the sake of discussion, the Firestone brand, can be
20 devalued very quickly in one day.

21 But when you have a broad based
22 organization, whether it's GE, Honeywell, or any other
23 of these large organizations that have a broad base on
24 which they are diversified assets, then I think again,
25 I'm trying to pull the test to the front end. It's

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1 something we have to do ongoing. If we are going to
2 make the decision, we make it up front, and then move
3 forward, without a huge regulatory burden on us, that
4 is transferred to a licensee.

5 MR. RAKOVAN: Any further discussion about
6 this particular topic at the table or on the phone?

7 Thirty second comments, all right. I'm
8 going to time you.

9 MR. RASOHFF: The bottom line in all this
10 is that there is no viable alternative to good
11 judgment.

12 MR. RAKOVAN: You still have a number of
13 seconds left. You don't have to use them.

14 Okay, good enough. If there is no further
15 discussion, I'll turn it back over to Kevin. If he
16 wants to give us a little background for the next
17 topic.

18 MR. O'SULLIVAN: Okay, this topic is on the
19 elimination of the escrow account, the suggested
20 elimination of the escrow account, and the line of
21 credit is financial assurance mechanisms.

22 We are still on page six of eight of the
23 handout. There are two bulleted items. The first
24 provides a basis to consider eliminating the escrow
25 account as a financial assurance mechanism.

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1 The second bullet suggests eliminating the
2 line of credit to simplify the regulatory structure.
3 This raises the following two issues.

4 MR. RAKOVAN: The first issue is, what are
5 the advantages and disadvantages of the escrow account
6 compared to the trust fund for purposes of financial
7 assurance for decommissioning, and should the escrow
8 account and line of credit be retained as financial
9 assurance mechanisms.

10 Let's start with the first one if we can.
11 What are the advantages and disadvantages of the
12 escrow account compared to the trust fund for purposes
13 of financial assurance for decommissioning.

14 Anyone want to take a stab at that one?

15 Oh, you guys really are talkative this
16 afternoon. Tom, help us figure out what we're looking
17 for on this one, if you would.

18 MR. FREDRICH: Well, what we are looking
19 for is the advantages and disadvantages from the
20 licensee's point of view.

21 From the NRC's point of view, the trust
22 fund has certain advantages, because it's a more
23 reliable protector of the property held by the trust,
24 as opposed to an escrow account.

25 And in the background, in the talking

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1 points, there is some background from EPA where they
2 decided that the difference between them was
3 significant enough to where they would allow a trust,
4 but they do not allow an escrow account.

5 On the other hand, from the licensee's
6 point of view, maybe it is just easier to set up an
7 escrow account. And that's the sort of thing we'd be
8 wondering about.

9 Does it cost much different to set up an
10 trust as opposed to an escrow?

11 The information I have available to me
12 suggests that there is not much difference in cost, so
13 if there is no particular benefit to the licensee, but
14 there is some benefit to the public by going with the
15 trust account, we might prefer just to eliminate the
16 escrow account as a mechanism.

17 MR. RAKOVAN: Any comments to this one at
18 the table?

19 Mr. Brown.

20 MR. BROWN: I surveyed quite a few of the
21 career member companies on this one - I'm talking
22 about escrow accounts. I'm not sure what the
23 difference is between an escrow account and a trust
24 account.

25 I do know what the difference between an

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1 escrow account and a line of credit, and that's the
2 cost of the two.

3 An escrow account is fairly economical.
4 A line of credit is not. So quite a few of the
5 radiopharmaceutical manufacturers and biomedical
6 manufacturers really shuddered at the thought of
7 getting rid of the escrow account.

8 Now if that could be rolled over to a
9 trust account instead of an escrow, I'm not sure what
10 impact that has. But I know getting rid of the escrow
11 would have a pretty severe impact, because most of the
12 companies are doing it now.

13 MR. FREDRICHS: Well, I guess our
14 understanding of the difference between the two is who
15 owns the property. And in the escrow account the
16 licensee still owns the property, although it is held
17 by the escrow agent.

18 The concern is that in a bankruptcy
19 proceeding it might be possible to reach that property
20 held in escrow and distribute it to creditors.

21 On the other hand the trust account, the
22 property is owned by the trust. Even if the licensee
23 is in bankruptcy, the property held by the trust is
24 not liable to attachment. Which is why it's more
25 attractive from a regulatory point of view.

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1 MR. BROWN: What is the difference in
2 administrative cost in a trust versus an escrow?

3 MR. FREDRICHS: Well, I see the costs on a
4 number of them that are sent into the NRC, and it
5 looks like either way it's a few thousand dollars a
6 year, depending of course on the size of the trust.

7 MR. RAKOVAN: Did that clarify everything
8 for you, Mr. Brown?

9 Comment from the audience.

10 MR. RASOHOFF: An escrow account is
11 certainly much more favorable to a small company.

12 I have one suggestion on the viability of
13 escrow accounts - we have several - and that is that
14 there ought to be more liberty on the part of the
15 company, particularly if it has a personal guarantor,
16 to have more liberty, and how they invest the money in
17 an escrow account. This is money that is tied up for
18 10, 15, 20 years. And as long as the escrow account
19 is generating additional revenue and meeting its
20 marks, that's something an individual can handle, at
21 least for - not for utility applications, but for
22 byproduct material applications, and it's a practical
23 way of providing cash collateral that will grow.

24 But there ought to be more freedom in how
25 that money is invested. It shouldn't have to be in

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1 government bonds, and it shouldn't have to be in cash.

2 MR. RAKOVAN: Thank you.

3 Any further discussion on this particular
4 topic? Yes, first time, Ms. Wheeler.

5 MS. WHEELER: This is the one thing I was
6 sent to talk about.

7 We do have one escrow account. It's kind
8 of a leftover legacy related issue for specific
9 equipment at our site. But we also have several
10 letters of credit, primarily for our state licensed
11 material. And our financial group didn't seem to
12 think that it was a big deal to change the escrow
13 account to a letter of credit instead, if that's what
14 you all decide to do.

15 So we don't really at this moment have any
16 opposition for our particular situation.

17 MR. RAKOVAN: Thank you.

18 I'll go ahead and fill out the second part
19 of this then, just to see if there is any discussion
20 on that.

21 And that is, should the escrow account and
22 line of credit be retained as financial assurance
23 mechanisms?

24 MR. EGIDI: This is Phil in Grand Junction.

25 Colorado would prefer that we retain the

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1 letter of credit option. A lot of our smaller
2 licensees use that instrument, and it's about the only
3 one available to them.

4 MR. RAKOVAN: Okay, thank you.

5 Tom?

6 MR. FREDRICHS: I should probably note that
7 the line of credit - we may be mixing up the line of
8 credit with the letter of credit. The letter of
9 credit will still be available to people. A line of
10 credit is essentially a promise by a bank to lend you
11 money when you need it. In our experience nobody has
12 used that anyway, and that's why we were considering
13 eliminating it. Unless of course maybe in Colorado
14 they do use it and we wouldn't know it at the federal
15 level.

16 MR. EGIDI: No, I'm sorry, I was confusing
17 it with the letter of credit.

18 MR. RAKOVAN: Thanks for the clarification,
19 Tom.

20 Mr. Egidi, did you have an alternative
21 comment that you would like to make then?

22 MR. EGIDI: No, just that I'm an idiot.

23 MR. RAKOVAN: Now, now.

24 Mr. Brown.

25 MR. BROWN: I would encourage the NRC to

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1 keep as many options open as possible, because it's
2 really hard to anticipate what future licensees will
3 need, their size, their liquidity. So unless you have
4 a problem with the line of credit, I would be inclined
5 to have you keep them all just as options.

6 MR. RAKOVAN: Okay, thank you.

7 A comment from the audience?

8 MR. HORIN: I'm Bill Horin with Winston
9 Strawn.

10 I'll second that. I've spoken with
11 several licensees, and whether we use them now right
12 now, they are options that are there that might be
13 useful in the future. We might be able to combine
14 them in situations where we needed to make up some
15 funding for a certain period of time.

16 We spent a lot of time in the `80s going
17 through and devising what all the possible mechanisms
18 could be. And I think they still have a place to hold
19 as an option, whether they are actively being used
20 right now or not.

21 I don't think that, again, unless there is
22 some major problem with them, I would not suggest we
23 do away with it.

24 MR. RAKOVAN: Thank you.

25 Any further discussion at this point? You

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1 have a \$64 question. Do you want to share it real
2 quick? Okay, hurry up. We'll see if it's really
3 worth 64 dollars.

4 MR. RASOHOFF: Are you guys considering
5 Appendix D that permits self assurance?

6 MR. FREDRICHS: Appendix D to Part 30, I
7 presume? No, we're going to keep all of those, the
8 self guarantee, the parent company guarantee. Well,
9 the self guarantee has for companies with bonds, for
10 companies that don't have bonds, the universities, all
11 those will be retained.

12 MR. RASOHOFF: No, what about Appendix D
13 that permits a company to self assure so long as they
14 have a healthy - so long as they meet the test of a
15 healthy financial condition?

16 MR. FREDRICHS: That will still be
17 available. We'll retain it.

18 MR. RAKOVAN: Okay, one more chance?

19 Mr. Brown.

20 MR. BROWN: Just to comment -

21 MR. RASOHOFF: Would you impose it on the
22 agreement states, please.

23 MR. RAKOVAN: Mr. Brown, back to you.

24 MR. BROWN: Roy Brown at Carere. That was
25 really the principal reason for Carere being here to

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1 make sure that we could do all we could do to
2 encourage the NRC to keep the self guarantee. So
3 that's very encouraging to hear that.

4 MR. RAKOVAN: One last shot?

5 Okay, I know the agenda says that we are
6 supposed to move on right now. But I think I'm going
7 to see if we could take a quick break, just to give
8 people a chance to stretch their legs, especially
9 since I see we have only one item in the parking lot,
10 and we have a full hour reserved for other issues and
11 wrap up.

12 So by my watch I'm at about 25 after, I'll
13 say a 10-minute break, because usually that turns into
14 15 anyhow. So let's get started at 25 of.

15 (Whereupon at 2:23 p.m. the
16 proceeding in the above-
17 entitled matter went off the
18 record to return on the record
19 at 2:36 p.m.)

20 MR. RAKOVAN: Okay, I think we've got a
21 majority of people back at this point, so why don't we
22 go ahead and get back started.

23 According to the agenda I have, we have
24 two primary issues to discuss, and then we've got a
25 little bit of time scheduled for followup

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1 clarification, parking lot issue at this point, and
2 anything else that we need to go over, and then turn
3 you loose.

4 So let's go ahead and jump into the next
5 topic. Kevin, if you want to give the quick review of
6 background.

7 DECOMMISSIONING FUNDING PLAN REPORTING REQUIREMENTS

8 MR. O'SULLIVAN: Okay, we're on page seven
9 of eight in the handout. This is dealing with the
10 decommissioning funding plan reporting requirements,
11 and the bullet that's there suggests that additional
12 reporting requirements should be required in a
13 decommissioning funding plan for certain licensees
14 under Parts 30, 40, 70 and 72, the material
15 facilities.

16 This raises the following issue.

17 MR. RAKOVAN: Okay, should the NRC add to
18 the regulations, the reporting requirements discussed
19 in the background that Kevin just referred to for
20 licensees under Parts 30, 40, 70 and 72.

21 And again, this is specifically not
22 reactor licensing I guess you could say.

23 Not that we have anything against reactor
24 licensees, but I think we're going to get to those
25 next.

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1 Anybody have any comments they'd like to
2 start the discussion with? I tell you, you guys are
3 way more talkative during breaks than you are during
4 the actual meeting itself.

5 Is that a hand, Mr. Boeldt? Excellent.

6 MR. BOELDT: Terry Boeldt, Penn State.

7 MR. RAKOVAN: Having a little trouble
8 hearing you.

9 MR. BOELDT: In your background
10 information, you mentioned that I would have to assume
11 an independent contractor is available to perform the
12 work.

13 My current decommissioning funding plan
14 suggests that my staff will gradually ramp down, and
15 that our decommissioning won't happen all at once.

16 We have contracts at a research
17 institution that are multiyear, and basically we sort
18 of assume it will take a couple of years to
19 decommission everything, and we'll do it with current
20 staff.

21 This is a reasonable assumption. It gives
22 me some job security. And it allows us to ramp down
23 slowly which is what we would expect to do.

24 Why does the NRC think we should hire an
25 outside contractor?

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1 MR. SHEPHERD: The idea of an independent
2 contractor to perform the work is contained in our
3 regulatory guidance at this point. And we're not
4 assuming that you are going to use an independent
5 contractor. The thought behind it is is that if the
6 licensee for some reason is unable to perform the
7 decommissioning itself, the NRC would have to somehow
8 make arrangements to have an independent contractor do
9 the work. So we want to make sure that the money is
10 there to pay for that.

11 MR. RAKOVAN: That's not a satisfied look
12 I see on your face. Does that answer your question,
13 Mr. Boeldt?

14 MR. BOELDT: It answers the question, but
15 it doesn't leave me in a happy mood, shall we say.

16 MR. RAKOVAN: Okay, do you want to go a
17 little further into that?

18 MR. BOELDT: For one thing it's much easier
19 for me to make the estimates based on my manpower, and
20 to have a reasonable estimate of the cost of the
21 decommissioning using in house people.

22 MR. RAKOVAN: Okay.

23 Mr. Brown.

24 MR. BROWN: Roy Brown, Carere.

25 Codifying some of the things that are in

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1 the guidance documents doesn't cause us as much
2 concern as some of the financial changes that you are
3 anticipating. So we're much more concerned about that
4 than codifying what's in the guidance now.

5 MR. EGIDI: Colorado will comment.

6 MR. RAKOVAN: Please.

7 MR. EGIDI: We have to recognize that there
8 is a difference between reality and how we plan these
9 funding plans, because they are predicated on a worst
10 case scenario.

11 Like the last commenter, his plans are to
12 ramp down and do things gradually and use his in house
13 staff, which sounds great right now. But
14 unfortunately he may end up with a new manager next
15 year that just wipes his program out, and then the
16 funding is not there.

17 We really encourage that the type of worst
18 case scenario is used for planning these things, with
19 the understanding that they don't necessarily reflect
20 reality. That's something we have to communicate to
21 our licensees all the time.

22 But as we've had to call a couple of bonds
23 in the last few years and manage some of these
24 cleanups, the overhead costs and the need for bringing
25 in outside contractors is paramount.

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1 State - agreement state staffs don't have
2 the time to manage these projects themselves, and they
3 can be quite lengthy, and the overhead costs can be
4 considerable.

5 So if you plan your decommissioning
6 funding with that premise, your differential on your
7 planning costs and your actual costs can be reduced.
8 So I think there is some merit in keeping the old way
9 of looking at it.

10 MR. RAKOVAN: Thanks. Mr. Egidi?

11 Oh, I'm sorry, we did have a comment from
12 the audience first.

13 MR. NARDI: Joe Nardi with Entercon
14 Services. I'd like to go back to some of the detail
15 in your background information.

16 It says you plan to require the basis of
17 the cost estimate to be unrestricted use criteria. I
18 don't have a problem with that general concept, but
19 it's in the details. And it almost goes back to what
20 I started, my first comment today is that what do you
21 mean by unrestricted use?

22 In certain considerations, you need to
23 know what those criteria are to get an adequate basis
24 for doing the decommission cost estimate. If you
25 don't, it's like in the uranium facilities, if you try

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1 to use the screening value, you are completely out of
2 range.

3 The other thing that I can give you a
4 specific example, not to the site, but in one
5 situation, that was interpreted to mean that
6 everything on site has to be removed. Period. No
7 relationship to whether something can be left behind.

8 That becomes an extremely limiting cost
9 estimate.

10 Now it is unrestricted use, but it's
11 extremely limited. So I'll go back to my first
12 comment: you need to be able to establish the lease
13 criteria during operation; not when you get to
14 decommission.

15 MR. RAKOVAN: Okay, thanks for that.

16 Tom, did you have -

17 MR. FREDRICHS: Yes, I could probably
18 respond to that in part.

19 What we mean by unrestricted use is 25
20 millirem per year. And what you are saying is, it may
21 be hard to figure out where you DCGL is for that in
22 some instances.

23 One of the main reasons we're going to put
24 this in place is because of some of the problems we've
25 had with legacy sites, because they assumed a

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1 restricted release in the first place; put aside say
2 \$5 million; and then when they time came, they
3 couldn't meet the criteria.

4 So we are trying to head that off at the
5 pass.

6 MR. RAKOVAN: Follow up?

7 MR. NARDI: Let me just add, and I was
8 specifically saying, I'm only talking about the
9 unrestricted. I understand the problem of trying to
10 assume a restricted release concept, because you don't
11 have everything in place to do that. You've haven't
12 done all the regulatory requirements to do that.

13 But even the unrestricted release needs
14 some concept of definition to be able to implement
15 that. Because if you take it wrong it will drive you
16 to the extreme.

17 MR. RAKOVAN: Okay, thank you.

18 MR. RASOHFF: It seems to me that you
19 could save yourself a lot of worry, and everybody else
20 a lot of money if you - I mean 25 millirem per year as
21 a permitted dose is worse than conservative - than too
22 conservative; it's reckless. In our case we've got
23 cobalt 60 which has a half life of five years, in 50
24 years we could use it for some real estate purpose, in
25 50 years what is there is going to decay by a factor

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1 of 1,000. And it seems to me you ought to have a
2 category of - you ought to be able to decommission to
3 unlicensed use.

4 It could be reviewed. It could be
5 monitored annually or something like that. There just
6 has to be some - and right now we're - the two major
7 sources of disposal have merged. And so we are back
8 to having a waste disposal monopoly.

9 Why didn't you guys object? We couldn't
10 object. We have to stay on good terms with those
11 guys. But why couldn't you guys object? Do
12 something, so that there is effective competition in
13 waste disposal, and that people with moderate half
14 life radioactive assets that are double encapsulated,
15 can incarcerate them on site, with the certain
16 knowledge that activity from them is going to be down
17 by a factor of 1,000 in 50 years.

18 MR. RAKOVAN: Okay, any further discussion?

19 Mr. Murray.

20 MR. MURRAY: Yes, Scott Murray with GE
21 Energy.

22 Adding again to that comment, unrestricted
23 use criteria is one endpoint that would allow license
24 termination.

25 License termination seems to me to be the

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1 goal of decommissioning; not unrestricted use.
2 There's a lot of uses of the properties, I can speak
3 for several of GE properties. We probably will not
4 seek unrestricted. We'll keep the property, and we'll
5 use it for some industrial purpose.

6 We won't necessarily build a parking lot
7 and sell it to the public, or allow public parks built
8 on it.

9 So unrestricted use may not be the best
10 option to drive everyone's cost estimate, because that
11 is not their long term goal; it's license termination.

12 MR. RAKOVAN: Thank you.

13 Tom?

14 MR. FREDRICHS: Well, if I could respond to
15 that, when we say unrestricted use, of course there is
16 a range of scenarios that it might encompass, one of
17 which would be for industrial purposes.

18 I think the unrestricted use criteria
19 would be for license termination. Now if you can show
20 us a scenario, an industrial use scenario, rather than
21 a resident/farmer, it will probably cost different but
22 it will be sufficient for your cost estimate purposes
23 if you just identify the assumptions, and we'll take
24 it from there.

25 MR. RAKOVAN: Did that address your

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1 question?

2 Mr. Greeves.

3 MR. GREEVES: I was going to say something
4 similar. The new reg 1757 gives you plenty of
5 flexibility to address that issue. So there is a lot
6 of information available to enable you to do something
7 more than what people think unrestricted use is.

8 I've got a question I think Tom you might
9 be able to answer. This three-year process, you go
10 through, you've got to come up with a decommissioning
11 cost estimate.

12 Years ago I used to worry about, when does
13 that kick in, can you refresh my memory? When does a
14 licensee have to post that money?

15 At one point in time we had to argue for
16 three more years about it before they had to post the
17 money. Is there anything changed on that? Do you
18 know what I'm saying? It's a question of, do they
19 have to put the money up when they say, this is my
20 decommissioning cost estimate; here's my million
21 dollars? Or is the delay process still there?

22 Do you understand the question?

23 MR. FREDRICHS: Yeah, basically when they
24 tell us the cost - let's suppose it's going up - the
25 cost has gone from \$5 million to \$6 million. A

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1 literal reading of the regulation is that when they
2 send in that updated cost estimate, they send in a
3 financial instrument to cover it.

4 MR. GREEVES: In the past they've argued
5 about when they cover it. Is that a requirement?

6 MR. FREDRICHS: Well, we changed the rule
7 actually. There was a time - it was in 2003 we
8 changed the rule to require a three-year update.
9 Before that there was no regulatory requirement to
10 update.

11 MR. GREEVES: The question is, when do they
12 have to post the money. They can give you a
13 decommissioning cost estimate three years later. Do
14 they have to put that \$6 million up the day they give
15 you -

16 MR. FREDRICHS: That is my interpretation
17 literally.

18 MR. GREEVES: Okay, that's the way I think
19 it should be, but there used to be a debate as to - of
20 course you don't always accept that \$6 million; it
21 might be some other number. And when you find out is
22 a topic you should keep an eye on.

23 MR. RAKOVAN: Any further discussion on
24 these types of licensees before we move this on to
25 reactors?

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1 MR. HAEMER: Bud Haemer, Pillsbury Winthrop
2 Shaw Pittman.

3 In terms of the question about contingency
4 and contingency factor for off site disposal, is that
5 going to be able for a licensee to demonstrate on a
6 case-specific issue?

7 I mean for example if they have a long
8 term contract with the disposal site, would that then
9 mean they wouldn't have to put in quite as much of a
10 contingency factor? Or is that going to be a 215
11 percent number that is going to come out of a new reg?

12 What is your thought on how we do that?

13 MR. FREDRICHS: Our thought right now is to
14 leave some flexibility in the rule itself, something
15 like an adequate contingency factor. It will be
16 backed up by regulatory guidance, which right now says
17 25 percent.

18 And I guess then on a case-by-case basis
19 a licensee could try to persuade us that something
20 else might be adequate under the circumstances.

21 I can't really give you much more than
22 that as a theoretical position.

23 MR. HAEMER: Right. I would encourage you
24 to think about allowing the option, if the criteria
25 under which a licensee could say they didn't have to

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1 have a contingency factor if they had a long term
2 contract or something, to make that self implemented,
3 to encourage that kind of contracting to assure
4 offsite disposal.

5 Because I think when you talked about the
6 difference between restricted and unrestricted use,
7 fundamentally the real issue there is onsite or
8 offsite disposal; I mean that's what drives the cost,
9 not necessarily the use criteria that applies at the
10 time, but the cost of whether or not you have to
11 package the stuff up and pay for a disposal
12 contractor.

13 And that, I think if you are trying to pin
14 those two costs down, I encourage you people to fix
15 those costs out in the future, is going to encourage
16 people to have done that, as opposed to having the
17 costs later determined.

18 MR. FREDRICHS: Well, one of the - actually
19 probably the biggest reason for the contingency factor
20 is unexpected costs arising. And to the extent that
21 you can get fixed-price contracts to eliminate that
22 type of volatility in prices, perhaps you can affect
23 the contingency factor.

24 One of the other things is, the unexpected
25 you don't know about. And I think some of the

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1 examples this morning might point to that, where you
2 have an expectation of contamination under your
3 foundation of your building, and when you get down
4 there you find out it's a lot more than you thought.

5 So the contingency factor also gives us a
6 cushion against that sort of thing. So I think it's
7 important that we have a contingency factor, but it's
8 possibly a case-by-case evaluation exactly how much it
9 should be.

10 But in our experience 25 percent is pretty
11 good as a rule of thumb.

12 MR. RAKOVAN: Any further discussion before
13 we move to reactors?

14 Okay, let's go ahead and do that.

15 REPORTING REQUIREMENTS FOR NUCLEAR POWER REACTORS

16 MR. O'SULLIVAN: Last page of the handout,
17 page eight of eight. This is dealing with reporting
18 requirements for nuclear power reactors.

19 There's two bullets in the background
20 information. The first and second bullet suggest
21 additional reporting requirements of reactors who have
22 submitted a certificate of permanent cessation of
23 operations.

24 And this raises one issue.

25 MR. RAKOVAN: Similar to what we just

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1 discussed: should the NRC add to the regulations, the
2 reporting requirements discussed in the background,
3 for licensees under Part 50?

4 And we have a hand already, Mr. Andersen.

5 MR. ANDERSEN: Yes, I'll answer a question
6 with the question.

7 I struggled through the material that you
8 made available, and I probably overlooked it
9 somewhere. I couldn't find this reflected in the SECY
10 or other documents.

11 So my first question was, was it in there
12 somewhere, and I just didn't find it? Or is this
13 something that has emerged since the SECY and the SRM?

14 MR. FREDRICHS: It wasn't in the SECY
15 because at the time it was written NMS didn't have
16 responsibility for decommissioning reactors.

17 Since that time they have been transferred
18 from NRR over to - well now FSME. And as you know
19 there is a funding reporting requirement now for
20 decommissioning reactors annually to report on the
21 status.

22 What our experience is that they tell us
23 what the fund balance is as required. That doesn't
24 necessarily tell us whether there is enough money left
25 to complete the job.

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1 And the change to the reporting
2 requirement would add how much they have actually
3 spent, and how much they expect to spend in the future
4 as they complete the decommission.

5 MR. ANDERSEN: So that's what it is. The
6 change is that you essentially want - this is annually
7 - no, I'm sorry, this is a one-time - the first bullet
8 is a one-time report; is that correct?

9 MR. FREDRICHS: No, it would be annual,
10 additional information to the annual report they
11 already submit.

12 MR. ANDERSEN: Okay, so the piece you're
13 really interested in is remaining funds against an
14 annually updated estimate of remaining work in terms
15 of costs?

16 MR. FREDRICHS: Well, that, and what the
17 total cost has been to date.

18 MR. ANDERSEN: Okay. And the second bullet
19 then is what's the problem that we are fixing with the
20 second bullet on spent fuel management?

21 MR. FREDRICHS: Well, right now, there is
22 a one-time report, and they also have to give us their
23 plan before permanent cessation of operations.

24 The thing that we're looking for is,
25 because of the unsettled state of spent fuel disposal

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1 of course, does a utility or licensee I should say
2 have a plan to address those costs? Do they know how
3 much it's going to be, and do they have a plan to
4 cover it?

5 And I should probably emphasize that we
6 are not looking for financial assurance of those
7 costs; only that they are identified and that there is
8 a plan to take care of it.

9 Once a reactor is permanently shut down,
10 the spent fuel needs to be disposed of. I mean that
11 is a question that is before us, so it's probably the
12 right time to start collecting information.

13 MR. ANDERSEN: Let me just suggest on that
14 one in particular, I'm sure - again, is there a
15 background document that really lays out a lot more
16 information on that?

17 MR. FREDRICHS: No, there is not a
18 background document.

19 MR. ANDERSEN: The reason I ask that is,
20 it's probably something that would be good for a much
21 more protracted discussion of what the concern is, and
22 how realistic it might be to enter into this.

23 I mean given the uncertainties around the
24 subject - you know, are we going to have a GNEP, are
25 we not going to have a GNEP? Are we going to dispose

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1 of spent fuel in 20 years or in 60 years?

2 I'm not clear what the added benefit is to
3 the agency. That's what I'm trying to understand.
4 I'm not sure it doesn't just become an exercise in
5 speculation.

6 So it isn't that I want to try to solve
7 that now. I just want to suggest that that might be
8 a good topic for a very focused interaction to really
9 explain in more detail what the benefit is that you
10 are after.

11 MR. RAKOVAN: Any additional discussion? I
12 see a gentleman approaching the microphone from the
13 audience. If you could identify yourself please.

14 MR. VAN NOORDENNEN: Gerry van Noordennen,
15 Connecticut Yankee and Yankee Atomic.

16 As a person who fills out these reports on
17 an annual basis for those two plants, and done it for
18 years, they are meaningless reports when a plant
19 actively starts to decommission.

20 For example, last year's report on
21 Connecticut Yankee, even though the estimate was \$550
22 million to decommission based on the NRC's formula and
23 the regulation, our balance was \$10 million. And
24 nobody was concerned because we were spending the
25 money as fast as it was coming in, and it truly is a

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1 meaningless report.

2 What we try and do, and the suggestion I
3 have for the NRC, is, the information you're seeking
4 we already provide in the license termination plan.

5 So if a licensee, a power reactor, a
6 licensee, has an approved license termination plan
7 that is required to be maintained and updated, or it's
8 incorporated into the IPSAR under 5071, that we would
9 just continue to keep that financial assurance
10 information current in the LTP and drop the
11 requirement to do this annual report, which really has
12 no meaning.

13 The other aspect to keep in mind too is
14 that once a utility has an approved decommissioning
15 fund, decommissioning cost estimate, and by approved
16 by mean by FERC or from their public utility
17 commission, that is really the number that is being
18 used. So that the formula really has - no longer has
19 a meaning when the plants are in active
20 decommissioning.

21 That formula also takes into - that
22 updated decommissioning cost estimate takes into
23 account spent fuel storage, because if you look around
24 the country, I think just about every power reactor
25 that has decommissioned has gone dry fuel storage, so

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1 that those costs are part of decommissioning because
2 you want to completely remove the plant. You don't
3 just want to have a spent fuel building sitting there
4 all by itself out there in the field that still has
5 some high levels of contamination while you've got all
6 the people and equipment there. You are going to take
7 that building down and decontaminate it and move the
8 fuel to dry storage. So that should be factored in.

9 The other thing that you should probably
10 factor in too is in the request people to add is the
11 decommissioning funds that are required on the
12 nonradioactive side, and that means the chemical
13 cleanup. And even though those are typically quite
14 small in the overall scheme of things, for example at
15 these two power reactors, we are probably talking on
16 the order of \$10 million to clean up the sites, and
17 implement long-term groundwater monitoring for the
18 regular type of cleanup.

19 A small amount, as Ralph alluded to
20 earlier this morning, in the overall costs of
21 decommissioning, but it's something that needs to be
22 included.

23 I think you should look at the whole
24 picture, because that's what FERC does whose truly the
25 energy that determines whether the decommission cost

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1 is appropriate, and grants the approval to collect the
2 funds. So I think there should be some consistency
3 there.

4 MR. RAKOVAN: Thank you.

5 Anyone want to add on to that, or make a
6 different point?

7 Okay, if there is no other discussion, I
8 guess we can move on to the few items that are left
9 outstanding.

10 We might as well hit the one that is on
11 the parking lot first if that is okay, and that was
12 study of completed complex decommissioning sites to
13 compare list versus estimates.

14 I thought someone, was it Mr. Maiers, did
15 you want to kind of go into why we put that into the
16 parking lot, and what you'd like to discuss about it?

17 MR. MAIERS: Again, in Pennsylvania, we
18 have a relatively large number of these legacy
19 decommissioning sites. And I believe that there are
20 good lessons to be learned. Because a good number of
21 these have been completed, or are close to being
22 completed.

23 And it's been my observation that there is
24 a big delta between what is required by the
25 regulations for decommissioning, and what the actual

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1 costs are.

2 And it occurs to me that nobody has taken
3 a close look at that, and tried to draw out some
4 lessons learned on why there is such a wide
5 discrepancy between decommissioning funding
6 requirements, and what the actual costs end up being.

7 MR. RAKOVAN: Okay, anybody want to add on
8 to that?

9 Okay, Drew, I think you had a topic - oh,
10 I'm sorry, Tom.

11 MR. FREDRICHS: One thing that - well, from
12 this morning's discussion when we were talking about
13 minimizing the contamination of the subsurface, there
14 was a discussion about how licensees used ALARA
15 concepts to protect the environment, as well as their
16 workers.

17 And I guess the question I was asking,
18 when you go through the ALARA evaluation, the cost and
19 the benefits, do the licensees include cost savings
20 and decommissioning that they can attribute to taking
21 action now.

22 MR. RAKOVAN: Anyone want to address Tom's
23 comment or question.

24 MR. ANDERSEN: I'll speak specifically for
25 reactor licensees, and this is a broad statement, but

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1 it applies really all the way from initial startup
2 through license termination.

3 Although the focus of ALARA on paper is
4 heavily based on cost-benefit, the ultimate decision
5 is not driven by careful consideration of one versus
6 the other.

7 It tends to be primarily triggered by the
8 desire to take action where action can be taken. And
9 what you end up doing is placing a lot more emphasis
10 on the ability to do something, rather than the cost
11 efficiency if doing something.

12 So even when it gets - during operation,
13 when we are looking at those issues in regard to
14 decommissioning, and what the additional benefits may
15 be, more often than not, we take action when action
16 can be taken.

17 If you look at the situations of power
18 reactors that have involved contamination in the last
19 say eight to ten years, which I will call the period
20 of contemporary regulation, remediation has been the
21 rule rather than the exception.

22 All of these recent events, and there is
23 an implication that these events have only occurred
24 recently, which is incorrect. They have really been
25 occurring throughout the cycle of nuclear energy.

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1 If you look over the last year, the vast
2 majority of any significant contamination events have
3 actually been remediated, or are currently actively
4 under remediation.

5 So it's not the case that we go through
6 some careful consideration of should we leave it in
7 place or should we remediate it. If there is a path
8 for remediation, the action is simply taken, partially
9 because of interactions with state and external
10 stakeholders, local public; and partially because it's
11 always recognized, and it's just a standing practice
12 that clean it up now is preferable to clean it up
13 later.

14 So I think the record will bear that out.
15 So it's not a precise calculation to the level where
16 we really have to carefully consider whether we have
17 that component in there.

18 MR. RAKOVAN: Mr. Brown.

19 MR. BROWN: Speaking for the
20 radiopharmaceutical manufacturers and medical
21 radionuclides, you know the concepts of ALARA and
22 environmental stewardship and protection of the public
23 and protection of employees, those really apply across
24 the board, whether we're looking at today, tomorrow,
25 next week, or 50 years from now when we decommission.

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1 The only exception to that would be, in
2 our case in particular, if there is a very short half
3 life material involved, sometimes it's just easier to
4 just button up a lab, or button up a section of the
5 site and just let it sit.

6 If you are looking at six-hour half life
7 material, you know, you wait a couple of days and it's
8 gone.

9 But no, there is no practice out there now
10 that, just don't worry about it, we'll deal with it 50
11 years when we decommission the site. That is not the
12 way our companies do business.

13 MR. VAN NOORDENNEN: Gerry Van Noordennen
14 again.

15 Having worked for many years are operating
16 reactors one of the things to keep in mind is, when a
17 spill occurs, and when there is a cleanup, the
18 criteria is not 25 millirem per year, it's basically
19 to look at concepts like ALARA and reduce the dose
20 consequences to workers onsite. Usually that's the
21 case, because the spill is contained on the site
22 property, so you are usually not worried about dose to
23 the public.

24 But that all changes that concept, that
25 mindset, when you permanently shut down and

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1 decommission. And now you are going to a much lower
2 standard, and instead of worrying about millirems per
3 hour, you are looking at millirems per year.

4 So the other thing to keep in mind is that
5 many of the states have lower remediation standards
6 than 25 millirem per year. And so the licensee wants
7 to do the decommissioning once, not twice. And so you
8 look at all the layers of regulation that are imposed
9 upon you by the NRC, by the UPA, and by your state
10 environmental organization, and you figure out through
11 that morass of regulation what your decommissioning
12 cleanup criteria are going to be, so you only have to
13 do this once and satisfy all the agencies.

14 So that's important to keep that in mind,
15 and that's where the discussion this morning about
16 meeting the EPA drinking water standard for
17 groundwater is very important.

18 Because if you want to transfer this
19 property to some future owner with unrestricted
20 release, well, the state agency, or the EPA is going
21 to hold you to that drinking water standard.

22 So if that is your goal when you start
23 decommissioning you have to keep that in mind, and you
24 have to remediate potentially quite a bit more soil to
25 get down to that lower standard than if you were just

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1 looking at 25 millirem per year.

2 Then there are other things you can do.
3 For example, power reactors in their discharge paths
4 that were permitted discharge paths, monitored,
5 permitted by the state agencies, like under their NPDS
6 permits, they have all had to remediate for those
7 discharge paths when it came down time to meet the 25
8 millirem a year rule.

9 It wasn't because they had a spill or
10 release. It's just that the radionuclides accumulated
11 over the 30-some years of operation and seeing the
12 sediments. And you were into a dredging rock wash in
13 your type operation. And things of that - people have
14 to keep in mind in decommissioning cost estimates that
15 those are lessons learned, that people who go on after
16 us will have to remember, and hopefully from the
17 reports that the NRC has done, that EPRI has done and
18 NEI to write down and capture these lessons learned so
19 that people don't repeat the same mistakes and
20 actually come up with a better cost estimate than the
21 current round of plants that are undergoing
22 decommissioning.

23 I hope that gives you some input.

24 MR. RAKOVAN: Thanks. Mr. Murray.

25 MR. MURRAY: Scott Murray with General

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1 Electric.

2 There is another important point. You
3 asked are we taking actions I guess on an interim
4 basis for cleanup of spills or whatever.

5 The answer I believe is yes. I can speak
6 for our facilities, major material licensees, fuel
7 cycle licenses.

8 However, there is an important
9 distinction. We are remediating, taking it to some
10 sort of an interim clean up level, not
11 decommissioning. We are not seeking license
12 termination at that point. We are not trying to
13 demonstrate 25 millirem per year.

14 The cleanup activity is driven largely
15 because of the risk-based or some sort of a
16 performance based criteria, dose to workers is one
17 public perception. There is another license
18 termination - timeliness rule, excuse me, is another.
19 All of those things play into why you would do these
20 actions.

21 Availability of disposal charge, rates at
22 a favorable rate. But we are not trying to
23 decommission the site; we are not trying to seek a
24 partial site decommissioning when we are trying to do
25 that. We are trying to take it down to an interim

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1 cleanup level of some sort.

2 So I'd prefer to call it interim
3 remediation or something else other than
4 decommissioning at that point.

5 MR. RAKOVAN: Comment from the audience?

6 MR. HAEMER: Bud Haemer, Pillsbury Winthrop
7 Shaw Pittman.

8 For power plant licensees I just want to
9 reiterate what Ralph Andersen said. But in addition
10 to considering ALARA, the other thing that those
11 regulated utility managers have to consider is
12 recovery of the funds under state regulation, or FERC
13 regulation, whether or not the fund expenditure is
14 prudent or fair and reasonable, and the decision as to
15 whether or not you defer it as a capital expense, or
16 spend it now out of O&M, is another factor they are
17 going to consider that is separate from - so to speak
18 - I don't want to say it drives the ALARA, but it's a
19 totally separate consideration from ALARA.

20 And to the extent the decommissioning
21 regulations aren't in synch with the type of
22 accounting that those managers have to do, you make
23 their live a little bit more challenging, a little bit
24 more difficult.

25 MR. RAKOVAN: Thanks.

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1 Mr. Boeldt?

2 MR. BOELDT: Thanks.

3 My first thought on this question was, we
4 don't pay any attention to the decommissioning process
5 which we don't expect to happen for another 50 or
6 1,000 years on a daily basis, but then I realize that
7 we do. Rooms come in and out of use probably five
8 percent of the use where we use radioactive material
9 are decommissioned every year, and another five
10 percent are added to that figure.

11 A number of rooms currently where
12 radioactive material was used, probably the total
13 number hasn't changed in a dozen years, but the rooms
14 involved have flowed, as people come and go, as
15 professors research changes and that sort of thing.

16 And we decommission - that's sort of our
17 term, not your term - we don't decommission the whole
18 site. We close out those rooms. We turn them over to
19 completely unrestricted use to the next researcher who
20 moves in who might turn around two weeks later and
21 say, yeah, I want to start using radioactive material,
22 and that has happened.

23 But we do close out these rooms on a
24 regular basis.

25 Does that answer your thought on that?

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1 MR. O'SULLIVAN: I would just like to go
2 back to the escrow account -

3 MR. RAKOVAN: Kevin, I think Mr. Andersen
4 had a comment in that discussion.

5 MR. ANDERSEN: Yes, I just wanted to bring
6 it back around.

7 The flow of your question is something
8 that comes up frequently in looking at procedures that
9 we might want to standardize within the power reactor
10 community for addressing unplanned releases.

11 What I want to go back to suggesting again
12 from your question is that I think NRC should take a
13 stronger interest in response to occurrences, although
14 they fall well below the health and safety threshold
15 in how the licensee has arrived at the decision to
16 respond to that, and particularly to be interested in
17 those instances where the licensee is determined to
18 either take no action or to rely on a term of art like
19 natural attenuation or some such thing.

20 And I understand the reasoning that went
21 into that, and that curiosity should be reiterate a
22 comment I made this morning. It is helpful also
23 though if NRC would take a stab at being more clear in
24 its expectations in the various requirements that
25 exist in the different parts.

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1 And again for reactors it's 5075G, but
2 there is an analogous requirement there right now.
3 There's just nothing behind it, no real history. It's
4 kind of go forth and do what you think is right under
5 that provision.

6 I continue to think in lieu of rulemaking
7 there is an opportunity to become more curious under
8 that requirement as to what licensees are doing, and
9 to ask the kind for questions that you just asked.

10 I think that would make a much more robust
11 database for you to base future rulemakings on if you
12 thought they were necessary.

13 And it's really hardly been inspected or
14 utilized at all up to now.

15 MR. RAKOVAN: Follow up comment from the
16 audience.

17 MR. SHEPHERD: Yes, Ralph, as I'm sure you
18 know, one of the conclusions -

19 MR. RAKOVAN: If you could identify
20 yourself, please.

21 MR. SHEPHERD: Jim Shepherd, NRC.

22 MR. RAKOVAN: Thanks.

23 MR. SHEPHERD: One of the conclusions we
24 reached in the tritium taskforce was that we needed to
25 define what significant was in the definition of when

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1 things should be entered into the decommissioning
2 files, and there is a study undertaken in NRR to do
3 that, which I hope will spread to all of the
4 regulations.

5 And secondly, it being such a rare
6 occurrence that NEI asks us to increase our
7 participation in the oversight of reactors, it's an
8 invitation we could hardly turn down.

9 MR. ANDERSEN: Again, I want to stress,
10 though, there is a corresponding requirement
11 throughout that might be nice if we could calibrate
12 those against each other.

13 MR. RAKOVAN: Any further discussion on
14 that particular topic before we move on?

15 Okay, Kevin. I'm sorry, John did you have
16 a last -

17 MR. ERNST: No further comment on that.
18 But I wanted to have an opportunity to answer a
19 question that Kevin had earlier this morning. If now
20 is the time. I can wait.

21 MR. RAKOVAN: No, sounds good.

22 MR. ERNST: Kevin asked whether there were
23 different regulations for monitoring small research
24 reactors versus the larger reactors. And there
25 aren't; the same regulations apply to both as far as

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1 that type of monitoring that you were asking about.

2 There are different requirements based on
3 the power level of how you monitor equipment, and
4 pools, and that sort of thing. But those are license-
5 specific. So those are regulated in that way, not in
6 a general overriding regulation.

7 MR. FREDRICHS: If I could ask about that,
8 the guidance within the TRTR, is there any differences
9 recommended for groundwater monitoring for small test
10 reactors compared to larger reactors, they have
11 different sources, different volumes of water?

12 MR. ERNST: We follow the same guidance,
13 1511 FAR, for both large and small reactors, follow
14 the same guidance.

15 MR. FREDRICHS: Thank you.

16 MR. RAKOVAN: Thanks, Mr. Ernst.

17 Kevin, you want to go with your follow up
18 question that you wanted to hit, then.

19 MR. O'SULLIVAN: Yeah, it's a brief
20 question on escrows. As I was looking through the
21 notes, the comment was made that there is not too much
22 of a difference between the escrow account and the
23 letter of credit.

24 The consideration is that EPA does not
25 allow escrows, and the technical basis is showing that

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1 there is a higher risk of the escrow account compared
2 to a trust fund. So those seem to be pretty good
3 reasons to consider in a proposed rule elimination of
4 escrow.

5 Am I right that there is relatively small
6 changeout costs from the escrow, so either to a letter
7 of credit or to a trust?

8 MS. WHEELER: Jennifer Wheeler, Nuclear
9 Field Services. I can't speak to the trusts, because
10 we don't have any of those, but the general impression
11 I got from our CFO was that it would not be a big - it
12 would be a cost but not a big impact for us to change
13 our one escrow account to a letter of credit of which
14 we have others.

15 And I didn't mean to imply that the
16 escrows were the same as a letter of credit.
17 Obviously the financial implications are different.
18 But the general administrative cost and the cost to
19 change it for us wouldn't be a big deal.

20 But we only have one, and we're only one
21 licensee.

22 MR. RAKOVAN: Further input?

23 I guess that's about it.

24 Mr. Persinko?

25 MR. PERSINKO: I just wanted to follow up

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1 on something we brought up this morning, power
2 reactors, the idea that while some reactors shut down
3 prematurely or whatever, and some found unexpected
4 contamination, and they may have exceeded their
5 decommissioning funding, but they came up with the
6 money. There was never a case where the money was not
7 obtained.

8 We also mentioned that the power reactor
9 industry has restructured recently such that producers
10 and distributors, and maybe there's a different
11 structure of the industry now than it had been in the
12 past, when facilities were obtaining the money.

13 I was just wondering if you had any
14 thoughts that you could share with us as to how you
15 think the restructuring of the power industry might
16 affect the ability to raise funds in the future?

17 MR. ANDERSEN: I'd also like to throw it
18 open to our two colleagues here as well. I'd just
19 like to make a general comment, and see if they can
20 offer something much more informed.

21 What I do know is that among the companies
22 that are considering new plants is, they are examining
23 exactly that question in regards to the
24 decommissioning. They are not looking at it solely in
25 the context of existing regulation, or even more

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1 recently on what might be proposed to be changed.
2 They're really looking on it as, are there actually
3 new approaches that we ought to be bringing to the
4 table to take a look at.

5 But considering a defining case that I
6 hear often in those discussions, it really is the
7 merchant plan applicant, and with various structures
8 of ownership.

9 So one thought among them is that given
10 the existing regulations it might be worthwhile to get
11 further into the licensing process to gain a better
12 understanding of the overall licensing picture, before
13 trying to settle what the right answers might be in
14 that context.

15 But I sense a very strong willingness to
16 engage in periodic interactions on that.

17 But I will tell you, it is an item of
18 active interest among those companies to figure out,
19 how should this work out, particularly in the context
20 of self guarantee and parent company guarantee.

21 With that, I'll pass the buck.

22 MR. RAKOVAN: Anyone want to -

23 PARTICIPANT: Well, I would agree with
24 that. But I want to make another point that is
25 related to that as well, and that is for SEC

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1 registrants.

2 The environment that we're in right now,
3 post-Enron and Sarbanes-Oxley, those kind of things,
4 we are now required by accounting guidance to have in
5 our financial statements liability related to
6 disposing of assets above and beyond the requirements
7 of the NRC minimum, whether it's related to interim
8 disposals, or at the end of the life of a plant,
9 disposal costs above and beyond the NRC minimum, so I
10 think you need to take those kinds of things into
11 account as well for our existing plants, in addition
12 to any new plants that we may be considering.

13 I think that fits into it very well, but
14 I would also say that from my company's perspective,
15 we are very open to debating and talking about what
16 are the right ways to address this issue for new
17 construction.

18 MR. LEVIN: This Adam Levin at Exelon, and
19 I have to jump on that bandwagon too.

20 MR. RAKOVAN: If you could just speak up a
21 little bit?

22 MR. LEVIN: I'm sorry. Let me just move
23 this a little closer.

24 I have to jump on that bandwagon also. I
25 know that we have taken a very, very deep look at our

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1 accounting issues, and how we have to deal with
2 recording asset retirement obligations in lieu of
3 changes and SEC accounting requirements.

4 And I encourage the staff to
5 wholeheartedly take a very hard look at what's being
6 done today with respect to accounting requirements,
7 and I think you will see that once you go back and
8 look at the issues such as the gentleman from
9 Honeywell raised regarding intangible assets and how
10 you record that, we are under some very tight
11 restrictions on how we do that on an annual basis, and
12 I'm wondering whether it requires the NRC to layer
13 another set of regulations on top of a very rigorous
14 process that already exists.

15 I know that we are looking very hard at
16 what our options are with respect to new plant
17 licensing, because it would be under a merchant
18 arrangement, and what we might do to meet the intent
19 of the regulation.

20 Right now all we have obviously available
21 to us is prepayment option. We do obviously look at
22 some of the other options, but they are far more
23 costly. So we certainly would be very interested in
24 engaging staff and talking about what other options
25 might exist for ensuring that decommissioning is

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1 funded appropriately.

2 MR. RAKOVAN: Thank you, gentlemen. Any
3 additional comments on this point?

4 Okay, any additional issues that we want
5 to throw out on the table? Mr. Ernst?

6 MR. ERNST: When we talked about the
7 funding options, one that wasn't touched on that I'm
8 interested in whether you are planning any changes to
9 is the statement of intent that most federal and state
10 licensees operate under.

11 Do you envision any changes to that?

12 MR. FREDRICHS: This is Tom Fredrichs.

13 No, we are not planning on changing that.
14 It will remain the same.

15 MR. RAKOVAN: Mr. Brown.

16 MR. BROWN: Roy Brown with Carere.

17 I had a general question for NRC. Can you
18 give us a feel for the rulemaking timetable on this?
19 Are you going to have an advance notice that goes out
20 first? Are you going to have industry workshops? Can
21 you give us a little flavor for what it's going to
22 look like?

23 MR. O'SULLIVAN: We've already made some
24 progress on the proposed rule. And we came into some
25 technical problems, items we discussed today, the

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1 groundwater monitoring, the financial assurance.

2 We are going to pick up the rulemaking
3 after the technical basis is complete. One of the
4 items that is incomplete is writing up the summary
5 notes of this meeting.

6 Everything that was said here will go into
7 summary, to the notes. And those notes will then be
8 part of the technical basis.

9 There are a couple of other items that
10 need to be complete before the proposed rule picks up
11 again and then goes through the concurrence process at
12 NRC.

13 So if you are asking for a time frame, I
14 would think that by summer we'd have a proposed rule
15 that is going up through NRC for concurrence.

16 Then it goes through the EDO, then it goes
17 to the Commission. And the Commission decides whether
18 they want to let it go as a proposed rule.

19 After it's out, people have 60 days to
20 comment. The working group, after all the comments
21 are received, the working group goes through all the
22 comments and prepares a final rule.

23 That would be about a year after the
24 proposed rule is released.

25 MR. RAKOVAN: Mr. Andersen.

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1 MR. ANDERSEN: Just a question, Kevin. Do
2 you have a state representative on your working group?

3 MR. O'SULLIVAN: Yes, we do. Tom Conley,
4 who was part of the call today, is on it.

5 MR. RAKOVAN: Any additional questions that
6 we want to throw out on the table at this point?

7 Mr. Boeldt?

8 MR. BOELDT: Yes, when you were talking
9 about adding collateral to the self guarantee, how
10 would you propose that collateral be funded for broad
11 scope - well, universities, hospitals, that sort of
12 thing?

13 MR. FREDRICHS: Well, at this point, our
14 thought was that if we are going to add collateral to
15 the self guarantee, it would be for all licensees that
16 use it, including universities.

17 MR. BOELDT: What sort of collateral would
18 you - we don't really have a cash flow. We have
19 tuition. That isn't what you look at.

20 MR. FREDRICHS: Well, you also have assets
21 that you can pledge as security against the
22 obligation. Large endowment funds, for example.

23 MR. RAKOVAN: Mr. Murray, you wanted to
24 make a statement?

25 MR. MURRAY: I was just asking a question

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1 on the perceived issue, I guess, of parent company
2 guarantee or self company guarantee.

3 Do you have experience over the past 20
4 years or so that these funding mechanisms have caused
5 a problem?

6 MR. FREDRICHS: No, we don't, and that's I
7 guess an argument in favor of leaving it alone.

8 (Laughter)

9 MR. FREDRICHS: Darn, my light is still on.

10 It's really more of a concern about what
11 might happen in the future, and we are exploring the
12 idea of trying to head off a problem that may occur.
13 And like I say, we are still considering this. So
14 everybody's comments here today will be very helpful
15 in deciding whether we want to go forward with this in
16 the proposed rule.

17 And of course if it isn't a proposed rule,
18 there is another chance to comment and perhaps bring
19 out more information.

20 MR. RAKOVAN: Mr. Brown.

21 MR. BROWN: One more comment on that.

22 I guess a self guarantee would require
23 assets, would not longer consider that a self
24 guarantee.

25 MR. RAKOVAN: Tom, you turned your light

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1 on, but I'm not sure you want to say anything.

2 MR. FREDRICHS: Well, it would be a secured
3 self guarantee. And one way of looking at it right
4 now, it's a promise to pay. In other words, it's an
5 unsecured promise. A promissory - it doesn't quite
6 rise to a promissory note level perhaps.

7 And as I was saying earlier, I mean it's
8 a bankruptcy concern. And whether the administrative
9 costs to the NRC and the licensee directly, and what
10 you might term opportunity costs of preempting that
11 collateral for use on some other project to secure a
12 loan are the sorts of things we want to weigh and
13 consider before we go forward.

14 MR. RAKOVAN: Mr. Andersen.

15 MR. ANDERSEN: I know one thing we had
16 talked about at the break, and maybe the idea had
17 already been put out there before was to have some
18 sort of graded approach with that notion, that whether
19 it be all encompassing, that collateralization is
20 always a part of it, that it rather be a condition
21 associated with something that doesn't fully satisfy
22 you under the self guarantee process. In other words,
23 an option available to the NRC to impose but not
24 automatically impose at all times.

25 MR. RAKOVAN: Comment from the audience?

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1 MR. RASOHOFF: Everything that I think you
2 are suggesting today increases the possibility that a
3 licensee might fail, and would you consider proposals
4 that would decrease the possibility that a licensee
5 would fail?

6 MR. FREDRICHS: Yes.

7 MR. RAKOVAN: Okay, let's get some.

8 Ms. Langhorst.

9 MS. LANGHORST: I know some of the topics
10 that were brought up on escrow and self guarantee
11 instruments and so on, I want to talk to my fiscal
12 people when I return.

13 And I wondered if you will be accepting
14 additional things, like if I could email you some more
15 items after I've talked with them, if that is a
16 possibility after this meeting?

17 MR. RAKOVAN: What do you think?

18 MR. O'SULLIVAN: Yes, somebody called in
19 and had that issue with respect to the teleconference,
20 that they weren't given the talk and listen privilege.
21 But I said if they had a comment on the meeting, if
22 they got me something say within a week or a week and
23 a half, or something like that, that we would put that
24 in the record of meeting.

25 MR. RAKOVAN: And your email address,

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1 Kevin?

2 MR. O'SULLIVAN: It's kro2@nrc.gov.

3 MR. RAKOVAN: Thanks.

4 A lot of people scribbling that down.

5 Okay, any additional questions, comments,
6 things to throw out on the table?

7 MR. EGIDI: One more from the peanut
8 gallery.

9 MR. RAKOVAN: Okay, peanut gallery, go
10 ahead.

11 MR. EGIDI: One thing we didn't talk about
12 this morning about sectors that might be impacted that
13 are on the horizon, I know you are working on
14 rulemaking, now there is a potential for source
15 material accumulation at drinking water treatment
16 facilities because of the new MCL for uranium.

17 As we are working through that rulemaking,
18 surety is a big issue there, because a lot of these
19 facilities are not municipalities or government
20 entities, but they are small private drinking water
21 treatment utilities that are just going to get
22 hammered under this rule, so I wanted to put that in
23 front of you, that that is an industrial sector that
24 hadn't really been contemplated before, that may end
25 up under specific license, under Part 40, our drinking

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1 water treatment facilities that accumulate source
2 material concentrations.

3 And again, another aspect that is kind of
4 outside the scope of ELTR, but certainly can impact
5 financial assurance are what are the requirements of
6 the NRC going to be for financial assurance for
7 increased security control licensees.

8 MR. RAKOVAN: Mr. Brown.

9 MR. BROWN: Kind of in that same vein there
10 may be some other sites that fall under the norm
11 category that will soon be under NRC's jurisdiction
12 that are in NRC states that may qualify for Part
13 30.35. So they will be included. In the past they
14 have had no requirement for decommissioning.

15 MR. RAKOVAN: Additional discussion?

16 MR. O'SULLIVAN: Well, we don't have the
17 NARN (phonetic) rule people here, but we will pass the
18 comments on to them of course.

19 MR. RAKOVAN: Anyone else?

20 Okay, seeing and hearing nothing, I will
21 turn things over to Drew Persinko to close the
22 meeting.

23 MR. PERSINKO: Well, Kevin talked to you
24 about schedule aspects. Let me just try to summarize
25 a bit.

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1 I started off this morning by saying why
2 we're here, and the purpose of being here was to air
3 the issues and discuss the issues to help us draft the
4 technical basis document, and that is what we're going
5 to do. We are going to go through the transcript, we
6 are going to sift out, review, sort, group the
7 comments, and try to use the transcript along with the
8 other technical basis documents that I mentioned here
9 today to help us develop a technical basis document
10 that we will then forward to Kevin.

11 So that's really where we're going to head
12 as far as the work that is in front of us right now,
13 and then based on that technical basis document, then
14 we can move forward, as Kevin mentioned with the
15 proposed rule, depending on where we come out after we
16 review all the information in front of us.

17 MR. RAKOVAN: Thanks, Drew.

18 I'd like to thank you all for your
19 participation today, and thank you for helping me keep
20 things moving, organized, and on schedule.

21 Safe travels home. Thanks again.

22 (Whereupon at 3:39 p.m. the proceeding in
23 the above-entitled matter was adjourned.)
24
25