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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
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4 RELEASE OF RADIOACTIVE MATERIAL WORKSHOP
5 ***
6
7 Crowne Plaza Atlanta PowesFerry
8 6345 Power Ferry Road, N.W.
9 Atlanta, GA
10 Tuesday, October 5, 1999
11 The above-entitled workshop commenced, pursuant to notice, at 8:00 a.m.
12 PARTICIPANTS:
13 DONALD COOL, NRC
14 CHIP CAMERON, NRC
15 PATRICIA HOLAHAN, NRC
16 BARBARA STINSON, Meridian Institute
17 MIKE LESNIK, Meridian Institute
18 SARAH WHALEN, Meridian Institute
19 BOB NELSON, NRC
20 RAY TURNER, David Joseph Company
21 JIM TURNER, Ameristeel Corporation
22 FRANK CARDILE, NRC
23 TONY HUFFERT, NRC
24 ART PALMER, ATG Incorporated
25 PARTICIPANTS: [Continued]
BOB MACK, Senior Health Physicist
STEVE KLEMENTOWICZ, NRC

1 IVY PORPETAGE, ICF Consulting
2 JOHN COLLIER, ICF Consulting
3 JOELLE KEY, Tennessee Division of Radiological
4 Health
5 JIM HARDIMAN, Georgia Department of Natural
6 Resources
7 TOM HILL, Georgia Department of Natural Resources
8 RANDY CLARK, Westinghouse Savannah River Company
9 LARRY HANES, Duke Power Company
10 VAL LOISEL, Armor
11 ED REITLER, Westinghouse Electric Company
12 JOHN KARNAK, EPA
13 ALAN CURE, Nuclear Fuel Services
14 HENRY PORTER, South Carolina Department of Health
15 and Environmental Control
16 NORMA ROGERS, Allied Signal
17 STUART TREBY, NRC
18 TERRY SIVIK, LTV Steel Company
19 TONY LEMASTRA, American Iron and Steel Institute
20 VINCE ADAMS, DOE
21 PAUL GENOA, NEI
22 JAY HINSON, NRC, Region II
23 PARTICIPANTS: [Continued]
24 KENNETH McCRACKEN, Southern Nuclear Operating
25 Company
BILL RANES, Tennessee Valley Authority
JOHN ETHERIDGE, Entergy Services

GWENDOLYN BOWER, OMNA
KEN KALMAN, Division of Waste Management
ROGER HANNAH, NRC
BILL HOUSE, Chem Nuclear Systems
DALE RANDALL, State of Maine Office of Nuclear Safety
RICHARD BUTTON, EPA
BOB ADCOCK, Manufacturing Sciences Corporation
VALERIE McNAIR, Manufacturing Sciences corporation
TOM COMBS, NRC
MIKE MATEA, Institute of Scrap Recycling

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

2 [8:00 a.m.]

3 DR. COOL: Good morning. I'd like to welcome each of you to our second public
4 meeting designed to discuss the issues and approaches that the Nuclear Regulatory Commission and the
5 Federal Government as a whole has available to it to properly control and deal with solid materials. For
6 those of you who I have not yet had an opportunity to meet, I'm Dr. Donald Cool, and I'm the Director of
7 the Division of Industrial and Medical Nuclear Safety at the Nuclear Regulatory Commission.

8 In that capacity, one of my tasks is to provide the management oversight for NRC's
9 examination of this particular issue.

10 As you may well know, there are no national standards in place today which articulate
11 the appropriate levels of radioactivity in solid materials at which control must be exercised to assure public
12 health and safety. That's not to say that there aren't lots of different standards, guidelines, criteria, values
13 which are out there by which we all live and work as we deal with our issues and our license activities.

14 On the other hand, there are many materials in our environment which contain
15 radioactivity as they exist in nature, or as a result of the various activities of man. A lot of those go well
16 outside the boundaries of traditional licensed activities that many of us are more familiar with.

17 In this age of increasing environmental consciousness, providing for public health and
18 safety has been given a whole new meaning and complexity by the task of how to specify how much of any
19 material can be allowed in any other material as we seek to conserve resources. There are many types of
20 facilities that possess potentially valuable materials which may have small quantities of radioactivity still
21 associated with them. At present, licensees determine whether such material can be released and returned to
22 the general market environment by applying guidelines related to the surface activity that was developed
23 more than 30 years ago and been implied in various forms and activities. In other cases, it's simply a
24 matter of whether or not any activity can be detected that is applied to a particular operation.

25 The result has been a continuing redefinition and debate over what should be considered
as the appropriate levels. As we learn more about our environment, we learn more about the presence of
different kinds of materials, and we improve our ability to detect and measure various kinds of materials.

1 Thus we are seeking to engage in a national dialogue on the issues associated with controlling solid material
2 in order to answer the question of whether and under what conditions such material should be disposed of in
3 an appropriately licensed facility or can be safely reused or recycled, either within the industry or outside of
4 the industry.
5 I believe we share a common purpose, that of applying appropriate controls to material on
6 the basis of the risks that they pose to us, both as individuals and as a global society. This meeting, other
7 meetings that will get to be held in Washington, D.C., and Chicago, and other opportunities for interaction
8 are all part of an enhanced participatory rulemaking process that the NRC has engaged in in order to
9 define the appropriate regulatory vehicles for establishing such a national standard.
10 Facilitated discussions here are going to be transcribed so that we can effectively capture
11 your thoughts and ideas, and I'd like to encourage you to be open with those ideas, and the reasons for your
12 positions. The rationale and the thought process behind a given statement is as important to us as the
13 position itself.
14 While this meeting certainly does represent an opportunity to hear from the NRC staff,
15 and we will certainly be glad to answer questions and interact with you, it's also an opportunity to explore
16 with each other the wide varieties of expertise and backgrounds that are available in this room in order to
17 look at the various options, maybe develop some new options, and the pros and cons of how to deal with
18 them.
19 There are a variety of background documents, an issues paper, a variety of things which
20 are available out in the foyer. They can serve as a starting point for our discussions. That issues paper
21 does not represent the end of all options. In fact, I'm quite sure that we will probably generate some others
22 as we go through the discussions over the next couple days. So please feel free to add your thoughts, your
23 modifications, or whole new approaches, as we go through these discussions.
24 Today's meeting and continuing on in tomorrow is going to be facilitated by a team of
25 facilitators which includes Chip Cameron, our special counsel for public liaison, and Mike Lesnik and
Barbara Stinson of the Meridian Institute. I hope that you will work with us and them so that this can be
a very meaningful opportunity to improve what we know and to help us define how to move forward in this

1 critical area.

2 Again, let me welcome you here today. I look forward to these discussions. And at this

3 time I'm going to turn it over to Barbara Stinson of the Meridian Institute.

4 Barbara?

5 MS. STINSON: Welcome again. My name is Barbara Stinson. I'm with Meridian

6 Institute, as Don said, and I'll give you just a little bit of background on Meridian.

7 We're a nonprofit mediation and facilitation organization, and Mike and I have worked

8 together for many years on these issues and other similar environmental and public policy issues, usually in

9 multiparty settings such as this, sometimes in a dialogue format, which we hope to create today, sometimes in

10 one-on-one negotiations, et cetera. And I'll tell you more about our role, et cetera, later on.

11 But I wanted to welcome everyone. Some have traveled a distance to be here with us

12 today, and we certainly appreciate that. Let me just say that Chip and Mike and I are emcees for today,

13 and we're here to assist you in any way that we can, so let us know whatever you may need, and let me

14 start by suggesting that everyone should have in front of them the latest agenda, which is out on the table,

15 and a copy of the slides, which various NRC staff will go through throughout the course of the two-day

16 meeting. So be sure you pick up a copy of those. There's also outside a number of NRC documents,

17 regulatory materials, et cetera, as well as a new staff requirements memo issued September 20.

18 There's also -- perhaps some of you had a chance to sign in as you arrived. If you did

19 not, we're going to ask you to do that, and that's not only to have a sense of who's here, but also if you'd

20 like to receive the follow-on materials to the meeting, we'll know how to get them to you.

21 As Don said, this is the second in a series of workshops. There are four. We started in

22 San Francisco September 15 and 16. We go on to Washington, D.C., November 1 and 2. We've now set

23 dates in Chicago of December 7 and 8. So for some of you, we'll see your faces at every meeting, and for

24 some of you, you'll probably be talking to colleagues who may be attending other meetings. Let us know if

25 we can help out with that communication. You can certainly help us out by letting us know who you know

of in the other regions who might be interested in attending. And you'll hear us say that again in the

course of this meeting.

1 The purpose of this meeting, as Don clearly articulated, I think, is to try to get more
2 understanding of the area of control of solid materials. It's also to explore the issues and concerns around
3 potential control approaches. The NRC has clearly stated as possible, the staff has stated that they are
4 interested in fully considering all the various regulatory approaches, and we're really going to try to draw
5 you out in the next two days for a thorough discussion of various alternatives, the impacts of those
6 alternatives, new alternatives, what they would really mean for your businesses, organizations, and regulatory
7 situations, so that the staff can take a fully informed recommendation back up to the Commissioners in the
8 spring of 2000.
9 As I introduce Meridian, I let you know what we generally do in situations like this.
10 For this particular set of meetings and this particular set of issues we've been involved in a convening
11 process where we've tried to talk to a variety of interest groups and parties regarding their potential
12 participation in this process. That convening process involves some meetings, some face-to-face discussions,
13 some conference calls, some just one-on-one conversations, and I'll take this moment to tell you that there are
14 a number of people who found that these issues were very interesting and compelling but new, entirely new
15 to them, or somewhat new to the impacts that they might have on their particular area of expertise, and
16 were therefore working hard to get up to speed on some of those issues and not able to participate in these
17 meetings or facing other priorities. So there's a range of folks who are not here at this meeting for that
18 reason.
19 There's also a range of individuals who are very concerned about precedents that have
20 already been set regarding this process, and, you know, decisions that might be made, and they have elected
21 to not participate in these meetings, and just to say up front, public interests and environmental
22 representatives are engaged in a boycott of this process, and I'm sure many or most of you know that.
23 Hopefully we'll see some folks during the course of the two days, and we can begin to engage in multiparty
24 discussion or discussions from various perspectives.
25 We're also, part of our role of course is to facilitate today, and what we'll try to do is
keep the discussions on target in terms of the topics that we're addressing, but we'll also try to stay on
schedule, so that we get through all of these issues. So you'll see us trying to do some timekeeping. We

1 may have to interrupt various portions of your comments or whatever. Please give us that license. But the
2 hope is that we can really create an environment today and tomorrow that will be even though in this kind
3 of unusual setting a dialogue where folks can ask questions of the NRC staff. You may want more technical
4 information. Staff may want to refer to each other, and may have questions back to you. So we really
5 encourage as much back-and-forth as possible.
6 The overall goal, of course, for today and tomorrow is to try to get a sense of the fullest
7 array of concerns from the broadest spectrum of individuals as possible, so we really encourage everyone to
8 participate.
9 There's a number of NRC staff here. The lead for this particular effort rests with Don
10 Cool and Patricia Holahan. And we'll let everybody introduce themselves in a moment and ask you to
11 mention your name and affiliation and perhaps, you know, one sentence about the impact that this particular
12 discussion might have in or the experience that you might have with these particular issues in your area of
13 work.
14 Let me just say that this is one opportunity for input into this process and into the
15 decision making that will proceed from these meetings. You may submit written comments. You may of
16 course take advantage of one-on-one conversations during the course of the meetings with NRC staff, and
17 you may also wish to talk with folks after the meeting. There is a transcription being made of this meeting,
18 and the transcript actually from the San Francisco meeting is already available -- the Web site address is
19 out on the table, there are meeting highlights from that meeting, and we will produce both of those for this
20 meeting as well.
21 There's actually three pieces that come out of it, the transcript, we produce some highlights
22 that just capture what goes up on the flip chart notes, and send that out to everyone immediately after the
23 meeting. That gives you a chance to just reflect on some of the topics that were covered, et cetera. It's not
24 as comprehensive as a full meeting summary, which Sarah Whalen is there on the computer developing as
25 we speak today. So that's some of the follow-on materials that are available, and there will probably be
others as well. So again do sign in if you want to receive all that.
Why don't we take a moment for a round of introductions, and give everybody a chance

1 to get to know who's in the room. We'll just go back and forth along the rows if we can and start with
2 Bob.
3 MR. NELSON: Bob Nelson, chief of the Special Projects Section, Division of Waste
4 Management, NRC. And it's my section that's providing technical support to this process.
5 MR. CARDILE: I'm Frank Cardile with the Nuclear Regulatory Commission. I'm in
6 Don Cool and Patricia Holahan's division, working on this effort.
7 MR. HUFFERT: I'm Tony Huffert. I work in the Division of Waste Management. I
8 work with Bob Nelson on the technical basis.
9 MS. HOLAHAN: Trish Holahan. I'm in the Division of Industrial and Medical
10 Nuclear Safety. I'm the section chief in the Rulemaking and Guidance Branch. We'll be looking forward
11 to all the input for providing feedback to the Commission in March of 2000.
12 MR. LESNIK: Mike Lesnik. I'm part of the facilitation team from Meridian Institute.
13 MR. CAMERON: Chip Cameron, part of the facilitation team from the NRC.
14 MS. WHALEN: Sarah Whalen, Meridian, notetaker.
15 MR. CAMERON: All right.
16 MR. PALMER: Art Palmer, ATG Incorporated, and I've licensed and permitted a
17 number of volumetric release systems.
18 MR. CAMERON: Did these guys go yet? No. These did. All right.
19 MR. MACK: Good morning, Chip. I'm Bob Mack. I'm senior health physicist and
20 technical lead for most of the work on supporting this rulemaking.
21 MR. KLEMENTOWICZ: I'm Steve Klementowicz. I work in the Office of Nuclear
22 Reactor Regulation. I'm a health physicist.
23 MS. PORPETAGE: I'm Ivy Porpetage. I'm with ICF Consulting, and we're supporting
24 NRC in public comment summaries and public comment tracking.
25 MR. COLLIER: John Collier, also ICF Consulting, providing analytical support to NRC.
MS. KEY: I'm Joelle Key with the Tennessee Division of Radiological Health.
MR. HARDIMAN: Jim Hardiman. I'm with the Environmental Radiation Program

1 with the Georgia Department of Natural Resources, Environmental Protection Division.

2 MR. HILL: I'm Tom Hill, with the Georgia Department of Natural Resources,

3 Radioactive Materials Program, and we do the licensing and inspection of the users of radioactive material.

4 MR. CLARK: I'm Randy Clark. I'm with Westinghouse Savannah River Company, and

5 we're involved in release of assets to the public, most of which have no radiological history.

6 MR. HANES: Larry Hanes, Duke Power Company. I'm the corporate radiation

7 protection manager, and I'm a certified health physicist.

8 MR. LOISEL: I'm Val Loisel. I represent Armor, the trade association of metal

9 recyclers. What is unique about this organization is that the majority of the processor companies who would

10 be implementing the activities resulting from the rule or actually do perform processing today are members

11 of this association.

12 MS. STINSON: Thank you.

13 MR. REITLER: Ed Reitler, certified health physicist at Westinghouse Electric Company,

14 Columbia, South Carolina. We operate a low enriched uranium fuel fabrication facility.

15 MR. KARNAK: I'm John Karnak. I'm at Environmental Protection Agency, and I'm

16 the director of the Center for Cleanup and Reuse. I've been involved in this subject for a number of years

17 now, along with problems associated with sealed radioactive sources that end up lost in commercial industry,

18 as well as looking at issues associated with contaminated metal and products coming into the United States,

19 imported into the United States.

20 MR. CURE: My name is Alan Cure. I'm an operational health physicist with Nuclear

21 Fuel Services in Erwin, Tennessee. We too are a uranium fuel fabrication facility, high enriched fabrication

22 facility primarily. I'm here to find out more about solid waste disposal.

23 MR. CAMERON: Thank you. Henry.

24 MR. PORTER: I'm Henry Porter. I'm with the State of South Carolina. Work in the

25 South Carolina Department of Health and Environmental Control in the Division of Radioactive Waste

Management.

MS. ROGERS: I'm Norma Rogers with Allied Signal. I am very interested in this.

1 because I have a lot of solid waste. Allied Signal in Metropolis, Illinois, is our only UF6 converter.
2 MR. CAMERON: Thank you, Norma.
3 MR. TREBY: Good morning. My name is Stuart Treby. I'm assistant general counsel of
4 the Nuclear Regulatory Commission. I had up a group of attorneys who provide legal support services for
5 rulemaking activities.
6 MR. CAMERON: Thank you, Stu.
7 Let's go over to the Turner boys -- the Turner Gang.
8 [Laughter.]
9 MR. RAY TURNER: I'm Ray Turner. One of us is good-lookin'; the other one's tall.
10 I'm with David Joseph Company. We're the world's oldest and leading recycler of scrap
11 metals.
12 MR. JIM TURNER: One of us is older, too.
13 I'm Jim Turner. I'm with Ameristeel Corporation. I represent the Steel Manufacturers
14 Association, which is a trade association for minimill steel producers. We produce steel from scrap. And
15 that's what we're concerned with, I guess the perceived or real contamination of our product or coproducts or
16 wastes as a result of this rulemaking, and public perception.
17 MR. SIVIK: I'm Terry Sivik. I'm manager of safety and health for LTV Steel
18 Company. I'm here representing the American Iron and Steel Institute, and together between AISI and
19 SMA, we represent 100 percent of the domestic steel production in the United States.
20 MR. LEMASTRA: I'm Tony Lemastra. I'm a certified health physicist consulting with
21 the American Iron and Steel Institute.
22 MR. ADAMS: I'm Vince Adams, U.S. Department of Energy, responsible for recycling
23 metals throughout the DOE complex.
24 MR. CAMERON: Thank you, Vince.
25 MR. GENOA: Good morning. My name's Paul Genoa. I'm a senior project manager for
the Nuclear Energy Institute. NEI is a Washington-based policy organization that represents over 280
companies worldwide that use nuclear technology to provide benefits, and of course in the course of doing

1 that every day, they release materials in one form or another, and are looking for consistent criteria to do
2 so.
3 MR. HINSON: I'm Jay Hinson with the NRC here in Region II. I'm a senior HP. I
4 do materials licensing and inspection.
5 MR. McCRACKEN: I'm Kenneth McCracken, manager of regulatory engineering and
6 environmental services, Southern Nuclear Operating Company.
7 MR. RANES: I'm Bill Ranes with TVA. We operate five commercial nuclear power
8 units, and deal every day with the issues of moving equipment and materials in and out of our facilities.
9 And so a national standard that provides uniformity and consistency in that area is very important to us.
10 MR. CAMERON: Thanks, Bill.
11 MR. ETHERIDGE: Good morning. I'm John Etheridge. I'm a senior staff coordinator
12 with Entergy Services, which is a subsidiary of Entergy Corporation, a major power producer in the United
13 States. I'm also a member of the NEI Executive Steering Committee addressing this issue and very
14 interested in how we can achieve a reasonable standard for the release of solid material.
15 MR. CAMERON: Thanks, John.
16 MS. BOWER: Hi. I'm Gwendolyn Bower. I'm representing the U.S. Department of
17 State. I'm in the Office of Multilateral Nuclear Affairs, and deal primarily with the International Atomic
18 Energy Agency.
19 MR. CAMERON: Thank you.
20 MR. KALMAN: Ken Kalman, NRC Division of Waste Management. I'm the technical
21 manager of NRC's contract with Meridian.
22 MR. HANNAH: I'm Roger Hannah, NRC Office of Public Affairs here in Region II.
23 MR. HOUSE: I'm Bill House with Chem Nuclear Systems, a low-level waste management
24 company, and at least for the next few months I'm still an employee of Waste Management, Incorporated,
25 which has subtitle C and subtitle D sites, and I'm here since we're concerned about where these materials
may go or may not go.
MR. CAMERON: Thanks a lot, Bill.

1 MR. RANDALL: I'm Dale Randall. I'm with the State of Maine Office of Nuclear
2 Safety, and I'm a State inspector at a decommissioning nuclear powerplant.
3 MR. BUTTON: I'm Richard Button. I'm a health physicist with the EPA here in
4 Atlanta, Georgia.
5 MR. CAMERON: Thanks, Richard.
6 MR. ADCOCK: I'm Bob Adcock, radiation safety officer for Manufacturing Sciences
7 Corporation, and we recycle metals.
8 MS. McNAIR: I'm Valerie McNair. I'm also with Manufacturing Sciences Corporation
9 in Oak Ridge.
10 MR. CAMERON: All right. Thank you.
11 MR. COMBS: I'm Tom Combs. I'm with the NRC's Office of Congressional Affairs, and
12 I'm the liaison with Congress on this subject.
13 MR. CAMERON: All right.
14 MS. STINSON: Great. Thank you very much for your introductions, and thank you for
15 being here.
16 We're going to turn now just to a few ground rules and talk over the agenda for our
17 meeting, and let me just kind of build on what I said earlier regarding Meridian Institute. Our role at
18 this meeting of course is to try to ensure that discussions, diverse discussions and perspectives do take place.
19 We have an unusual setup for this meeting. There are three of us involved in the
20 facilitation team, that we call it. Chip Cameron is special counsel to the liaison, as he said, and he is
21 serving as internal facilitator with the NRC, and Mike Lesnik and I have been working -- we've all been
22 working with many of you and many others regarding the structure of these meetings and design of the
23 discussions.
24 We'll ask that for these meetings, as I said before, you give us the opportunity to direct
25 the discussions, et cetera, as necessary, so we meet all of our goals, but also that you respect each other's time
in the course of discussion, and do that by both keeping your remarks to the point and also not interrupting
others, of course.

1 We will ask that you use a microphone for every comment that you make, and that you
2 start your comments by stating your name and affiliation. We'll get into a rhythm of that so it will
3 probably be pretty easy, but we may have to remind you, and that's just so that the transcription comes out
4 accurately and you're not attributed to somebody else's comments.
5 In terms of part of the flow of today's discussion, we'll be starting each session with a
6 presentation from NRC staff. These are designed to be brief, to give you a chunk of information at the
7 outset of the discussion, but also to hopefully pose some questions that will lead towards further exploration
8 of particular issues. Bring up whatever associated issues that you'd like to in those sessions, but we'll
9 quickly turn from those presentations to questions of clarification and then a back-and-forth dialogue and
10 discussion, again trying to thoroughly understand each of these major topics and various points of view on
11 those topics, but also to explore what other issues you might want to raise. And we'll go through that set of
12 discussion items for each of the sessions, eight of them, by the end of tomorrow.
13 Why don't we just talk through the agenda a little bit so you can get a sense of where
14 we're headed, and you can ask any questions or offer any comments that you might have about it.
15 We start today with an opening of just a general introduction into why we are here in
16 this room discussing these issues today, what is it that's prompting NRC to consider a rulemaking on this
17 range of issues, and then we'll take a break during -- at some point in this morning. We'll probably try to
18 stay on schedule if we can, unless the flow of discussion dictates otherwise. And later this morning begin to
19 talk about what the overall picture is for NRC with licensees on solid materials release.
20 SPEAKER: Barbara, are there any extra copies?
21 MS. STINSON: Yes, they are all -- I think there should be plenty, and we'll bring some
22 more in and circulate them if anybody else needs a copy. You should grab the latest one from today if you
23 don't have it. It's just got a few more refinements to it.
24 We'll take a break for lunch. Lunch will be on your own. We'll have some suggestions
25 for you in the area. There's a restaurant here in the hotel as well. It's going to be able to accommodate
many of us, not all of us. And this afternoon we start to talk about what the NRC is currently doing to
control solid materials, what is the case-by-case approach, and how is it being conducted currently, and other

1 associated issues.

2 After a break later on this afternoon we'll start to talk about the alternatives, and this is

3 an important area. There's a number of alternatives listed in the issues paper. We'll start with a

4 presentation that describes those, but really begin to explore what are the implications of some of those

5 alternatives, and what are some other alternatives that the NRC should be considering. So again your

6 creative input is going to be useful in that discussion.

7 By the late afternoon we will close with a discussion on how do you assure controls under

8 various scenarios, under various alternative approaches. And there's a number of mechanisms already in

9 place, and you may have ideas about others. Clearly under any of the alternatives and any of the

10 approaches there are going to be concerns about assuring that controls and standards or whatever approach

11 is adopted is maintained.

12 Tomorrow morning we'll open at 8:30 with a review, a brief review of the content of

13 NUREG-1640, which is a popular new document that's been in circulation a little while. It's radiological

14 assessments for clearance of equipment and materials.

15 Unfortunately we've had a glitch in our transport and mailing system, and those are not

16 here for you to look at right now. It's a two-volume set, if you've seen it. It's in draft form. It's open for

17 comment. And were hoping they're going to be here by first thing in the morning. So we're working to

18 have those, and if you haven't received a copy of the executive summary, we have copies of that available as

19 well. So in case you're completely unfamiliar. But regardless, Bob Mack will walk us through a description

20 of some of the methodologies used for NUREG-1640.

21 Later in the morning we'll begin to talk about environmental impacts, environmental

22 public health impacts, and again that's across the full array of alternatives, really trying to understand what

23 some of the potential impacts are that the NRC staff have anticipated and which ones you all might suggest.

24 And then we'll move on to a discussion of economic impacts and potential costs and benefits. And that

25 will conclude by tomorrow afternoon around three o'clock, the substantive portion of and exploration of the

meeting.

At three o'clock we'd like to have a discussion amongst those who are able to be here still

at that late hour -- or not that late, but the close of the meeting -- and really understand what are some of the pros and cons. In summary, after all the information that you've heard and the views expressed, et cetera, what are some of the pros and cons of various alternatives, and just some general advice from you all back to Don and Trish and the rest of the staff about how to proceed with this determination on a rulemaking.

By four o'clock we'll adjourn, and like I say, shortly after this meeting, we'll provide some brief highlights that will basically capture what's put on the flip charts. We'll supply those to everyone, and begin preparing for the next meeting.

Are there any questions about the agenda? Any comments about it?

We can make adjustments as we go along. Certainly ideas that come up regarding the process of discussions are as welcome as the substantive input.

Okay. I think we're ready to get started.

Trish?

MS. HOLAHAN: Okay. Thank you.

As I mentioned, I'm Trish Holahan from the NRC. I wanted to start off a little bit this morning with talking about why we're here today, and what you perceive, and we're looking for input back and feedback as to where you see the need and things like that as to where we're going.

As you've already heard, part of our purpose for being here is in terms of looking at our congressional mandate and responsibility for the protection of the public health and safety and the environment, and as a result, this is one of the issues that is part of that, and we'd like to look forward to move on that.

But, as I say, what is the need for some effort in this area? Why are we examining our approach for controlling solid materials with small amounts of radioactivity?

We know that there are solid materials at licensed facilities today that will need some form of disposition. These materials range from having large amounts of radioactivity to no activity at all. All of this material will ultimately need to be disposed of by some safe means. As I say, today we're trying to focus on that material that has small amounts of radioactivity, and therefore the overall question is

1 how should these materials with this small amount of radioactivity be handled.

2 For example, consideration might be given to whether all material should be buried in a

3 licensed low-level waste disposal site, or alternatively is there a safe way to reuse or recycle some of these

4 materials if the radioactivity levels are low enough, either some quantities of these materials, some types of

5 these materials -- as many of us are aware, there's a growing interest in recycling and conserving resources,

6 and reducing overall disposal costs for a large volume of slightly contaminated material that may pose very

7 small risks to the public. And so there are a number of issues associated with this.

8 While there are standards for disposing of material with large amounts of radioactivity at

9 licensed burial sites, there are currently no generally applicable NRC regulations for control of most of these

10 materials with small amounts. Nonetheless, licensees are still coming in to seek to release of materials when

11 they're obsolete or no longer useful, or when the facility is being shut down or decommissioned. In the

12 absence of a standard, NRC has developed guidance as to the acceptable levels that can be used by both

13 NRC staff and licensees in looking at this material, and therefore currently the decisions are being made on

14 a case-by-case basis, and we'll hear more of that, as Barbara mentioned, this afternoon.

15 Although the guidance is considered safe, the lack of criteria creates inconsistent release

16 levels, and therefore nonuniform levels of protection. In order to try and address these limitations of the

17 case-by-case approach, NRC wants to consider all the issues in an open public forum, and look at a full

18 analysis of all the health and environmental impacts involved with the situation, as well as evaluating the

19 related economic impacts.

20 You might ask why NRC? What's NRC's role and authority in setting these standards?

21 Not all radioactive material is under NRC jurisdiction, but only that material that is related to fuel cycle

22 or made radioactive in a reactor. The individual States regulate naturally occurring and

23 accelerator-produced materials.

24 NRC's authority and responsibilities were established in the Atomic Energy Act of 1954,

25 which was then amended most recently in 75, and as part of that, NRC issues regulations which provide for

the protection of public health and safety from the use of radioactive materials, and also regulates and

inspects this material and its uses by its licensees to ensure that it's being used in a safe manner.

1 What's NRC's interaction with EPA and the interface? EPA does not regulate licensees
2 in the same manner that NRC does, but rather EPA sets generally applicable environmental standards that
3 NRC would then implement through rulemaking for radioactive material that's under the Atomic Energy
4 Act. However, as in this case, EPA is not currently considering rulemaking in this area, and therefore in
5 the absence of EPA standards, NRC has the authority to set radiation protection standards for its licensees.
6 A question that we have been asked on numerous occasions is has NRC made any
7 decisions to date? Where are we in this process? Well, as many of you may know, in June of 1998 the
8 Commission did issue direction to the staff to develop a dose-based regulation for clearance of materials and
9 equipment containing residual radioactivity using an enhanced participatory rulemaking process.
10 Subsequently in June of 1999 the Commission approved publication of an issues paper
11 which was published on June 30 of '99, and lays out several alternative courses of action and announces a
12 scoping process for environmental considerations. As part of that, NRC is holding public meetings to solicit
13 early input from a variety of interested parties in a collective form, and this is one of those.
14 And then finally in September of '99 -- and Barbara mentioned there are copies
15 outside -- the Commission issued further direction to proceed with the enhanced processes as currently
16 scheduled, and then the staff will prepare a paper and briefing on the results of the public meetings, the
17 status of the technical analyses, and recommendations on whether to proceed with rulemaking or if there are
18 other staff actions that should be taken on this issue. As part of that, we would include the stakeholder
19 reactions and concerns, and that's why these meetings we feel are critical in terms of giving us input to go
20 back to the Commission in March.
21 Why publish an issues paper? Let me expand on this a little bit further. As I say,
22 we're in the very early stages of considering the various alternative courses of action. In considering how to
23 proceed, what should be the criteria if we do proceed?
24 NRC plans to enhance the process by getting early and continuing public input and
25 discussing the issues. The issues paper presents various issues and alternatives. It is not meant to be the
only alternatives. As I say, we're looking for additional alternatives as well to consider related to the
control of solid materials. We hope to foster discussion, and then the comments on these can either be

1 submitted here at the meeting, the transcripts are all part of the public record, they can be submitted
2 electronically or in writing.
3 It may be that after hearing some of the discussion today you can go back and think and
4 want to provide us additional comments, and that's welcome. We're holding the four public meetings, and
5 the primary objectives of these public meetings are to ensure that the relevant issues are identified for an
6 exchange of information not just between NRC and you, but amongst yourselves, so that you can discuss with
7 each other what the issues are, to identify the underlying concerns and the areas of disagreement and where
8 possible identify approaches for resolution. As I say, if you have a specific position, to provide us that
9 rationale for that position is as important as the position itself.
10 Also, we'll then identify any other issues and alternatives, as I already mentioned. We
11 will continue to conduct an enhanced participation including opportunities for ongoing dialogue and input
12 as well as the early input. In determining a course of action, we'll consider the public comments, the health
13 and environmental impacts, and also the cost-effectiveness of alternatives, and that will all factor into our
14 decision making process.
15 I've talked about enhanced participatory process. How does that differ from our typical
16 rulemaking process? Well, typically what we would do is we would get early and substantive input from
17 the agreement States by developing a rulemaking plan which would go out to our agreement States. I'll
18 talk a little bit more about the agreement States in a minute.
19 Following the Commission approval of that rulemaking plan, we would develop a proposed
20 rule, and as part of that proposed rule, we would consider the environmental impacts in accordance with the
21 National Environmental Policy Act. I apologize for our acronyms on the slides, but I believe there's a
22 listing of the acronyms out on the table outside. Also, we would look at the cost-benefit analyses. And all
23 these pieces would be published as a draft for comment, public comment. Following the public comment we
24 would consider them and then prepare a final rulemaking.
25 What additional steps are we considering in an enhanced process? Well, as I've already
mentioned, we have the issues paper that was published in the Federal Register and is also up on the Web
site, and the Web site address is also available outside. We are holding these facilitated meetings. We're

1 going to be placing follow-on documents on the Web site. We've already got the transcripts on the Web
2 site. As we develop staff drafts, those will go up on our Web site.
3 There's also the capability to provide input by e-mail through listserves and so on and so
4 forth. Also, we'll be holding periodic open working group meetings. And then there will be updates and
5 briefings of the Commission that are open to the public. As I mentioned, the September '99 SRM
6 indicated that there would be a briefing in March of 2000, and that would certainly be open to the public.
7 In addition, one additional piece that factors into our decision making is in 1995 the
8 National Technology Transfer Act, which was a public law, requires Federal agencies to use voluntary
9 consensus standards in lieu of a Government unique standard, where possible or when available. In this
10 particular area, there is a voluntary consensus standard that is not published as final yet, but we understand
11 has been approved, and that's an ANSI standard, the American National Standards Institute has a standard
12 that relates to the clearance issue.
13 In addition, as far as the enhanced input is again in accordance with the September SRM,
14 if the Commission decides to proceed with rulemaking, they've directed that the preliminary generic
15 environmental impact statement would be issued as a draft, and we would hold additional public meetings on
16 that preliminary GEIS before actually publishing it for comment. So one of the questions we would ask is
17 are there other suggestions as to how we could enhance input.
18 One final point that I'd like before I open it up for discussion is I mentioned that the
19 issues paper also announced what we call a scoping process. In accordance with NEPA, or the National
20 Environmental Policy Act, if we're doing an environmental impact statement, we need to scope out what are
21 the environmental issues. We believe that it's both effective and efficient to seek comments on both of these
22 at the same time to maximize and utilize the available expertise and input that we have at these meetings.
23 A major consideration of the issues paper are the potential health and environmental
24 aspects, and also the scoping process identifies range of environmental issues. Since the principal issues are
25 the same, we felt it was, as I say, efficient to get input on both at the same time. So that's also part of the
purpose of this meeting.
And at that point, I'll turn it back over to Barbara and open it up for discussion, try to

1 get some feedback on some of these specific issues such as the need for this effort, and also what we can do
2 to enhance participation.
3 MS. STINSON: Let's start with questions of clarification. We want to be sure that
4 everybody has a common understanding of the general introduction that Trish has provided. We're going to
5 talk about a lot of these issues in much greater depth through the course of the two days. But anyone have
6 any questions for Trish regarding some of the key elements of why NRC is proceeding with this, what's
7 driving the rulemaking, et cetera, that you'd like to ask? Is it all crystal clear?
8 MR. PORTER: I'm Henry Porter with the South Carolina Department of Health and
9 Environmental Control.
10 My comment isn't really on what's driving the process, but that I think it's a good process,
11 the enhanced process, having the early public involvement I think is going to lend a lot of credibility to
12 the process, and because this particular rulemaking affects so many industries not already regulated by the
13 NRC or the agreement States, I think that makes it even more important, and because it has impacts on the
14 public. All of those are important reasons for having this early involvement.
15 MS. STINSON: Good. Thanks. And we'll talk more about what early and ongoing
16 involvement really means.
17 Other initial questions?
18 MR. MATEA: Good morning. Mike Matea with the Institute of Scrap Recycling. The
19 question that's come to mind -- agreement states. I think that makes it even more important and because it
20 has impacts on the public. All of those are important reasons for having this early involvement.
21 MS. STINSON: Good thanks. And we will talk more about what early and ongoing
22 involvement really means.
23 Other initial questions?
24 MR. MATEA: Good morning, Mike Matea with the Institute of Scrap Recycling. The
25 question that has come to mind and we haven't gotten an answer in our discussions is I believe that for
some time the EPA was looking at the same issue and examining the science involved, and my
understanding is decided not to proceed because there wasn't a comfort level that this type of release level

1 could become achieved.

2 Based on that uncomfortableness on behalf of the EPA, why would the NRC proceed

3 without trying to get both entities comfortable with the same process, since they both have expertise?

4 MS. STINSON: Why don't you start, Trish, and then we will go to John.

5 MS. HOLAHAN: Okay. We are working with EPA. As I say, you are correct, they

6 did a rulemaking effort and it is currently on hold, or that effort was stopped. But we are working with

7 EPA. They have developed certain technical bases and they are participating on the working group that we

8 have for this rulemaking effort.

9 And perhaps, John, could you add to that perhaps?

10 MR. KARNAK: Sure, why not. I am John Karnak with EPA. Mike and I know each

11 other, and perhaps let me just clarify a bit. Not necessarily uncomfortableness with doing something here,

12 but in the process of doing our work, we looked at all of the material that might be available for recycling

13 and felt that the volume that was possibly -- we looked primarily at metals when we looked at ours, and the

14 volume of material that might be available was very small compared to what is recycled in the United

15 States. But in the process, and Mike was one of the ones who helped us bring to our attention the fact that

16 there were orphaned radiation sources that ended up in scrap metal that posed, in Mike's opinion, and we

17 tended to agree with him, a bigger problem, and, therefore, we went after the problem of orphaned radiation

18 sources and put together a problem with the states through the CRCPD, and some of you are familiar with

19 that. And we felt there was just a higher priority to look at orphaned sources.

20 And then, secondly, as I mentioned when I introduced myself, potential of material coming

21 in from foreign countries. There is a lot of stuff that is getting recycled in some foreign countries where the

22 controls are virtually absent. And we felt that it was necessary, or advisable to work with the IAEA to try

23 to help bring some of these kind of things under control, and felt these were higher priorities, not that we

24 are abandoned or anything as far national standards. We, in fact, did put together our draft information

25 and we are not working on a standard now. I did want to -- that is correct, we are not working on a

standard. And the NRC is within their jurisdiction to go forward with the standard for the licensees in the

absence of us doing one.

1 Did I answer the question?

2 MS. STINSON: And this, of course, highlights one of the issues I am sure we will get

3 into some discussion of, which is -- what volume of material are we really talking about, not only in metals,

4 but in some of the other solid materials? And how does that contribute to the potential need for some kind

5 of action on the NRC's part?

6 Other questions? Other comments on this initial presentation? And, again, you will have

7 opportunity -- we want to explore in depth some of these issues as we get into other presentations.

8 I am going to go to Terry, if you don't -- he has got a mike there. Go ahead.

9 MR. SIVIK: Terry Sivik, representing American Iron and Steel Institute. I attended

10 the last session in San Francisco, and I noticed a number of people who are in this room also did. And

11 one of the issues that came out was is we spent 80 to 90 percent of the time talking about recycling of

12 steel, as opposed to the other materials. And it was clear at least from the steel industry's perspective that

13 we did not want free release of steel into the environment or into the consumer products because of the

14 perception associated with the steel.

15 I was wondering if there is going to be some expanding of the discussions without

16 necessarily putting all the detail and focus into steel, because, again, we are a united metals front here, and

17 not just steel, primarily the nickel people and the other metals people are against the release of the steel

18 into -- the metal materials into the consumer goods. So I was just wondering, are we going to try and work

19 on some other aspects of this other than the metals?

20 MS. STINSON: That is a very good question and, of course, there is good representation

21 from the steel industry here today. We have been, in trying to convene this process, solicit the input from

22 and the participation from copper, nickel, other metals, from the concrete industry and maybe some of you

23 all in your associations can, you know, with your colleagues, let us know of other individuals that we can

24 contact. We are hoping that, certainly by the Washington, D.C. meeting, there will be enough advance

25 notice that people can participate and we can have more focused discussions on some of the other materials.

And maybe some folks even today can bring out some of the issues that might be related to some of the

other materials that would be affected by a potential rulemaking.

1 Val.

2 MR. LOISEL: Yes, Val again from Armor. One thing that was brought up was the

3 ANSI consensus standard. At some appropriate time if someone in the room has more knowledge on that, I

4 would like to hear more about it.

5 MS. STINSON: Yeah, if there is not someone here in the audience who has some specific

6 association with ANSI, then I am sure some of the NRC staff would be available to do that.

7 Go ahead.

8 MR. KLEMENTOWICZ: I'm Steve Klementowicz, NRC. I would like to address the

9 issue about the steel. As part of this process we are looking at soil, the potential for releasing soil that has

10 low levels. So it is not just the focus on metals but soil got a late start. So this is something that the

11 NRC does have to evaluate. And I believe there are some contracts with the -- okay. So NRC will be

12 doing work on the issue of soils and concrete. So I guess you don't have to feel alone out there, just that

13 we are focusing on metals and steel.

14 MR. MATEA: Just one quick question.

15 MR. STINSON: And your name and affiliation again? I'm sorry. We have got to do

16 that every time.

17 MR. MATEA: It is Mike Matea with the Institute of Scrap Recycling. The initial

18 comment period was set as November 15th to correspond with what was going to be the last meeting at

19 NRC the first of November. Since the Chicago meeting was pushed back, is the comment period date going

20 to be pushed back as well?

21 SPEAKER: Yes, go ahead.

22 SPEAKER: Oh, I am sorry. Yes, it is. We just got the finalization of the dates for the

23 Chicago meeting as December 7th and 8th, and as a result, we will be extending the comment period on the

24 issues paper to December 22nd. We have not, because we are here this week, not got the Federal Register

25 Notice out, but we will be issuing a Federal Register Notice officially extending the date of the comment

period.

MR. LEMASTRA: Tony Lemastra, American Iron and Steel Institute, but in this case I

1 am on the Health Physics Society's N-13 Committee that essentially reviewed the Health Physics Society
2 standard, in answer to the gentleman from Armor. That standard was looking at a couple of things. One
3 was to move beyond surface contamination to also look at volumetric, and also to look at a lot of things
4 that might be within a facility, tools, for example, milling machines, heavy equipment that had a fair
5 amount of value that could be moved from, let's say, the restricted area to the unrestricted area, tools like
6 wrenches, hammers, screwdrivers, things like that, that perhaps don't have a lot of value, but have a lot of
7 bulk that would increase the cost of disposal in a low level rad waste site, that, if they met the guidelines,
8 could be then essentially moved into an unrestricted use.
9 So there was a lot there that was beyond or not focusing on just free release to the, for
10 lack of a better word, I will use the environment, meaning whatever is outside of the site boundary.
11 MS. STINSON: And perhaps others will have comments on it as we go through the day.
12 Paul.
13 MR. GENOA: Yes. Good morning, Paul Genoa with the Nuclear Energy Institute. And
14 I think the point that you have brought up is very important. I think that the context of this meeting in
15 San Francisco tended to get shifted towards this idea of how much radioactive material is okay to shift to
16 the steel industry, and I don't think that is really where the discussion wanted to go. There is no economic
17 necessity to make that happen, it is not acceptable to the public.
18 The point is that materials needed to be released from facilities every day, as you have
19 pointed out. There are welding machines and trucks, and tools and people and clothing, and trash, and you
20 name it, it has to come out of that facility. A guy has got a lunch box, he has got to go home at night.
21 And so you have to have a standard that allows you to sort those materials that can safely go out from
22 those materials that need to continue to be regulated in some fashion. And that is what we are trying to
23 get at is that criteria and that threshold, and it has to cover all materials.
24 I believe that the focus on steel recycling occurs because in regulatory or engineering
25 space, we like to do a bounding calculation -- what is the worst case? Oh, well, let's assume in a worst case
the criteria allows a certain amount of radioactive material to go out. What is the worst case situation?
Oh, it gets concentrated in a recycling mode. Well, if we can control that, then everything else is safe. So

1 I think that is how we started to get this focus, you know, on recycling. And I think we need to bring it
2 back into balance, that there needs to be a clear criteria of what can be released, because it is being
3 released today, and how to move forward. Thank you.
4 MS. STINSON: Anybody want to build on that comment with perhaps other perspectives
5 on what really is the need and where might you -- what is the need in terms of types of materials, volume
6 of materials, et cetera, and where might boundaries around, in terms of regulatory control, be considered?
7 Or other issues or questions that you might have.
8 MR. NELSON: Bob Nelson with NRC. To follow-on on that, there is -- I agree, we did
9 spend a lot of time at the San Francisco meeting on metals. It may be because of the audience that was
10 there, but I think we pointed out there, and I will point out here, that release can really address three
11 different scenarios, recycling, which we spent a lot of time at, at San Francisco, but direct reuse of material,
12 and disposal in other than a regulated low level waste disposal facility. So there is really three processes,
13 recycling, reuse, and disposal. And we need to look at all three of those rather than just focusing on
14 recycling, and in the case of San Francisco, recycling of metals.
15 MS. STINSON: Other comments? Comments on that suggestion? Art.
16 MR. PALMER: Art Palmer, ATG. I just wanted to maybe cast a little bit of light on
17 some of the economics that are associated with disposal of some of the material. Thanks a lot. When we
18 are talking about disposal of near environmental levels in low level waste disposal landfill, we are talking
19 about on the order of $40 to $60 a cubic foot. And when you get into disposal of near environmental
20 levels in Subtitle C or D landfill, you start looking at costs on the order of $20 a ton. That is a
21 significant difference. And that is one of the things I think that is really driving this issue right now is
22 the monopoly that has been created in the United States.
23 MS. STINSON: Mike.
24 MR. MATEA: Mike Matea with the Institute of Scrap Recycling. I am not comfortable
25 with the concept that we need to move away from the discussion for recycling, because if disposal or reuse
was really that viable an option, we wouldn't all be here today. I mean the idea is that we have been
hearing that there is a great deal of material there, and that disposal or reuse is not that viable an option

1 to cover the bulk of this. So recycling probably is the viable option as, I would say, if you were looking at
2 it from the standpoint of those who are sitting on the material.
3 The problem is that when you look to recycle this material, the concern -- and I can't
4 speak directly for the steel industry, but I hope I will properly, is that there are two concerns. Number
5 one, there has been a concern because of history, of the amount of problems that radioactive material have
6 caused. Very much so for the steel industry and especially so on some recent occasions, for the recycling
7 industry. So there is that concern that there has been a history of problems, and we have seen what those
8 problems can cost, and the damages they can do.
9 There is the next concern is that is for perception. That the recycling industry feeds
10 material to the steel industry, and the steel industry then feeds material to the public. And if the public
11 doesn't want radioactive material of any concentration having been in the feed stock to make the new steel,
12 or the new aluminum, or the new stainless, regardless of how low it is, then all the scientific data in the
13 world, and all the assurances of annual exposures aren't going to help industries who have to sell to the
14 public, who have to sell to industries who say, I don't really want that material.
15 And so I think that the impact on steel and recycling, and aluminum and nickel
16 recycling, and the making of new products from the scrap need to be addressed as probably the main issue,
17 because, as I said at the beginning, if reuse or disposal was that viable an option, we probably wouldn't be
18 worrying about a release value, because you would be already reusing or disposing without worrying about
19 coming to private industries to take this material and to reuse it.
20 MS. STINSON: Good. Thank you. Other points of view on those issues? Comments?
21 Terry and then we will come back to Norma.
22 MR. SIVIK: I want to second Mike's comments. My comment was to basically try and
23 get the issue of recycling steel from this -- out of the arena, because we are violently, vehemently against it,
24 and we will do everything we can to ensure that the safety of our products and the public perception is not
25 hindered for use. This is our livelihood.
And I just want to give you an example of what kinds of things happen. And this has
nothing to do with radiation at all. I got a call from one of our customers asking if we could certify that

1 the level of mercury in our steel was 1/10th -- below 1/10th of a part per billion. And I scratched my
2 head and I said, well, I can tell you it is below 1/10th of a part per million, but I can't tell you that it is
3 below 1/10th of a part per billion. Why do you need to know? Well, our customer, a large automotive
4 company in the United States, wants to know that.
5 Well, they make paint cans for the automotive industry. So the automotive company
6 wanted the company that we sell the steel to, that makes paint cans, to assure the level of mercury in there
7 was below a tenth of a part per billion. That is actually below the level of analytical detectability using
8 the most extreme methods for analysis.
9 So this, these are the kinds of things that the steel industry will be facing.
10 MS. STINSON: Norma.
11 MS. ROGERS: Norma Rogers from Allied Signal. From the perspective of a small
12 entity involved in all this, there are a lot of waste that is not steel. My biggest actual component at my
13 facility is already dealt with the NRC on a case-by-case basis, and it has nothing to do with steel
14 whatsoever, and reuse, recycle is actually part of the process. And cost is a very big factor if you are in the
15 nuclear industry.
16 Public-wise, I have met very few people that want any nuclear anything. And if you tell
17 them that you are getting radiation from X-rays or medical situations, half the public, you blow their mind.
18 And your customer with the mercury, they have got to dispose of those paints cans, and disposal costs,
19 believe me, are very, very important. We have been working for a year, a whole year, trying to dispose of
20 one thing, to try and get the cost manageable. And the cost is very, very expensive.
21 The other gentleman brought the subject up, for someone in the industry, someone that has
22 the material, and when it comes to low level, we got it, that is all it is, we don't have anything enriched,
23 and we have a big problem with it. So, to me, metal is just one-third of the issue, it is certainly not the
24 issue.
25 MS. STINSON: Could you -- Norma, could you just give one sentence on Allied Signal
and what materials, other materials you have to --
MS. ROGERS: Allied Signal is a converter of natural uranium into uranium

1 hexaflouride. We are the third step in the fuel process. It is dug up, it is milled, it comes to us, and then
2 it goes to enrichment. So we are the only facility in the United States that does this, and there are five
3 worldwide, I think, that do this process.
4 MS. STINSON: And the other materials that you are dealing with in terms of reuse or
5 disposal?
6 MS. ROGERS: We have byproducts created throughout our process, and those -- and we
7 have waste steel. We have scrap drums. The ore, uranium ore concentrate comes in 55 gallon drums. We
8 have to do something with those drums. We have to clean them or something, recycle them through reuse.
9 Just -- there is nothing wrong with the drums. We have to deal with the metal and whether or not
10 someone can take it to put some other type of something into it or not. That is part of it.
11 We have soil that if we -- you know, if I dig a hole to put a post in it, I have got soil
12 I have got to deal with. So, and I can't always put it back in the hole. Even if the hole is -- everything
13 around it is contaminated, the soil I dig up is contaminated, I can't put that back in that hole, I have got
14 to get clean soil in that hole. You know, these are some of the issues that we have to deal with. And it is,
15 to me, I understand the steel industry's problem from a public perspective, because we have to deal with that
16 also. But it is -- to me, it is not all steel, there is a lot of other problems.
17 MS. STINSON: Others?
18 MR. REITER: Ed Reiter from Westinghouse. I have heard a couple of comments this
19 morning about the public not wanting radioactivity in their recycled materials. First of all, I am very
20 disappointed the public hasn't participated. I know that the NRC has nothing to do with that. But I wish
21 the public were here to participate with us. And as a health physicist, I believe that if the public is
22 properly informed about the issues, the fact that everything we handle is radioactive, has radioactive
23 materials, both natural and man-made, and that if we establish the dose standards properly, so that they are
24 a small fraction of what people are being exposed to routinely from natural background, I believe the
25 public will accept the NRC's standard in this area.
MS. STINSON: Go ahead, Bob.
MR. MACK: Turn this ways. I am Bob Mack from the NRC. I am wondering if we

1 could draw out or elaborate a little bit more on a comment that was made earlier, I believe from the steel
2 industry. And that is there seems to be a couple of facets here that you are wrestling with and, therefore,
3 we indirectly are wrestling, and that is there is a safety issue on one hand and public perception on the
4 other. And while they are linked, they may be independent at some point. And so the question is, how
5 should the NRC expend its efforts in wrestling with these problems with the steel industry Where should
6 we be putting our efforts? Are we doing it in the right sense?
7 MR. LEMASTRA: Tony Lemastra again, representing AISI. Actually, this week I was
8 supposed to be out in Seattle at a committee meeting that is addressing this very issue from the National
9 Commission on Radiological Protection, the NCRP. One of the issues that may address this is the concept
10 of a dedicated melter where the material goes to a fully licensed melting facility that serves two purposes,
11 one in the refining phase or the refining of the metal, in the heating of it, you actually clean it. That
12 could be for any of the metals, essentially, you know, whether you are talking steel, aluminum, nickel,
13 copper, whatever.
14 Then that could -- you know, where it goes from there is something -- is a second issue.
15 I believe the steel industry's position on this is that that remain within a licensed confine. When you look
16 at -- just looking at economics, when you look at the total volume of metal that would be recycled for
17 remelting, you are not really looking at that much, definitely in steel. Probably you are in things like
18 stainless steel, if it would be recycled.
19 There is also an economic factors with things like nickel. But the attitude within, from
20 what I have heard within the nickel organization is that they really don't want to touch it, even though
21 there is a great financial incentive there.
22 But looking at the dedicated melter concept as a licensed NRC facility that would then
23 take the metal, melt it, clean it, possibly reuse it or possibly make things out of it that would then go back
24 into a regulated environment again is one issue, or one thing for the NRC to consider.
25 When you look at economic costs, and coming from a health physics background, with the
whole idea of ALARA, as low as reasonably achievable, what we as a group have to do is look at the total
economic impact. And, yes, there is an impact on Allied Signal, there is an impact on the nuclear industry.

1 But if you look at what the impact is, and, again, I will focus on steel because that is where I come from.
2 If you look at the impact of, let's say, cleared recycled metal coming into a plant, there is a very good
3 chance that when you are looking at Energeta gamma emitters, you will have enough potential to cause an
4 alarm. That is going to result in -- yes, yes. Yeah, I have basically looked at it.
5 SPEAKER: [Inaudible.]
6 MR. LEMASTRA: No, I have --
7 SPEAKER: But you are prepared not to do that one at all.
8 MR. LEMASTRA: Okay. If you cause an alarm, you are going to cause a response
9 from the steel plant. There is a cost involved there. If you continue to cause alarms, there is going to be a
10 tendency for the people that man these systems to ignore them. If they ignore them, there is the potential
11 cost of eventually missing a real source that could be contained in the scrap. So there are some, you know,
12 ancillary costs there that the steel industry is really worried about, not to mention the one that Tom talked
13 about, the real impact on the industry which could see a loss of an entire market.
14 MS. STINSON: We want to spend a great deal of time talking about economic impacts,
15 costs and benefits, et cetera, various alternatives, so I appreciate you flagging that issue. Val, and then --
16 MR. LOISEL: Yeah, Val, Armor again. These topics get pretty exciting for me. They
17 get my blood running. But let me explain that Armor companies really don't need to be here in the sense
18 that we are a highly regulated since the license, itself, is a vehicle of prohibition in many cases. For
19 example, on release and metals with volumetric contamination, I can't do it. My license doesn't permit it.
20 So, if the environmental community really understood the licensing process and the prohibitions that are
21 inherent in it, they would, also, see where we are today.
22 Okay. So, now, the view is there are many more materials, especially metals, that need
23 some attention in a volumetric way. I don't think we're going to get very far until we get some support
24 from the rest of the industry that's involved with this process with us, whether it's ESRE and the recycling
25 of metals, scrap recycle, or if it's the steel industry. It just doesn't go anywhere until we develop that level
of comfort.
What I would like to -- you know, this goes -- this is a long story, but let's begin it by

1 saying that fugitive sources, which are the biggest headache for the steel mills, are really a part of, but not
2 a part of this discussion. We do not advocate handling or recycling of sources. Those things have to be
3 regulated and controlled throughout their life and through their final disposition. And so, we're trying to
4 get away from the notion that we're going to cause a four million or a ten million dollar shutdown of some
5 facility somewhere at our expense or your expense or society's expense. No, we're really looking at that vast
6 body of scrap metal -- from our point of view, from the industry's point of view, it's very small -- that we
7 want to deal with and that there's low residual activity and there should be some point below which it
8 makes sense not to regulate it. So, that's done.
9 Well, let me stop there for now. Thank you.
10 MS. STINSON: Thank you.
11 MR. CLARK: I'm Randy Clark with Westinghouse Savannah River company. In our
12 introductions, as I mentioned earlier, we're in the business of resale of excess assets. That's primarily
13 equipment to the public. And in doing so, that involves a large variety of equipment. It involves cranes
14 and generators and welders, pumps, extrusion process, large pieces of equipment, compactors, trucks, vehicles,
15 road graders -- you name it, you know, we've sold it at one time or another.
16 Most of this equipment has no radiological history. However, some of it comes out of
17 buildings, which are not contaminated areas, are not radiological buffer areas, but -- and are clean. But, we
18 have to validate that it's clean, even if it has no known radiological history, in order to clear that
19 equipment, even though it has no known radiological history, by association of being in the same area. And
20 as you notice in some of the proposed language, the word "area" is used, that you can be potentially suspect
21 of being contaminated by being associated in an area with equipment. So, we have to have standards. And
22 we use the standards that the gentleman mentioned earlier that exists today, to clear that equipment and
23 validate that, in fact, it is safe -- we're talking about surface level contamination.
24 From an economic perspective, we have to be cost effective. We do not try to sell a piece
25 of equipment that is highly contaminated. It has to be of large value, like an extrusion press, and very low
level in just a few spots. Otherwise, we leave it to the waste cycle business. And I think that's very
important, is those items we can't clear, I'm talking about equipment, for resale or processing and

1 economically gets some value out of them, then go to the waste cycle process, and we have to go to low-level
2 burial or some other very expensive process down the road. When you're dealing with a large piece of
3 equipment, like a Manitohawk 100-ton crane, which one we're looking at now, the potential for
4 decontaminating that and reselling it, is that the cost of burial for that at $50 or $60 per cubic foot, as
5 someone mentioned earlier, is quite expensive. It actually costs more than the original crane costs. So, you
6 can go out and buy a new crane at five hundred to seven hundred thousand dollars, cheaper than you can
7 bury it. So, those are the kinds of decisions you make. So, if you don't take the effort to clean it up, it's
8 not a free ride to the taxpayer. In fact, it quite often costs the taxpayer quite a bit more.
9 So, for those reasons, we need the standards, not only for the recycle metal recycle business,
10 but for the rest of the equipment, which is a very high volume equipment. And today, when you look at
11 all the so called clean equipment that gets cleared, that volume is much higher than the metals that we
12 recycle today.
13 MS. STINSON: Thank you.
14 MR. CARDILE: These discussions are useful, because --
15 MS. STINSON: Frank, can you mention your name, please?
16 MR. CARDILE: I'm sorry, Frank Cardile with the NRC, working on this effort with
17 Patricia and Don Cool. These discussions are useful, because they point out from a variety of perspective,
18 both the NRC licensees and the steel manufacturers and the scrap dealers, what different people's concerns
19 are, and they funnel back, I guess, into the general question that we're asking, at this session, why should we
20 examine our approach or reexamine our approach, what's the need. We'll get into a lot more detail, I guess,
21 in some of the discussions we're going to have coming up about what the current situation is and how that
22 feeds into this need.
23 But, it sounds like what I'm hearing is that, yes, there's a need for a standard of some
24 sort. As I think Trish has already mentioned, the current case-by-case approach, and as we'll talk about
25 this some more, the current case-by-case approach is that there's -- there are things that are able to go out
on their existing practices and standards -- or not standards, but existing practices and guidelines, but as an
opening thought or whatever, it sounds like there's a general feeling that there is a need for a standard for

1 NRC licensees, whatever -- we may not agree, yet, upon what that standard should be. There's a variety,
2 and we'll talk about the alternatives. But, it sounds like it's useful to, I'd say, some consensus that there's a
3 need for a standard of some sort.
4 MS. STINSON: I would caution -- if you don't mind, I would caution you, Frank, on the
5 use of two words there, "agree" and "consensus."
6 [Laughter.]
7 MS. STINSON: This is words that I'll be watching out for carefully. I mean, the
8 purpose of these meetings is to try to get expression of the various points of view and I think you're
9 hearing a lot of good understanding of what the underlying concerns and issues are for -- from a number of
10 perspectives, and we want to hear from others, as well. But, I don't necessarily hear agreement that a
11 standard is the best approach and I don't certainly hear a consensus on that. I understand what you're
12 hearing, which is a lot of --
13 MR. CARDILE: Concerns.
14 MS. STINSON: -- yeah, concerns and views expressed on those issues. Is it Gwen or
15 Vince -- oh, Mike, and then we'll come back to Paul.
16 MR. MATEA: Mike Matea with ESRE again. Just to respond to a comment that was
17 made about it's a shame that the public is neither involved nor informed, and I need to argue that they are
18 both. They are very much involved. They're involved through the hundred plus environmental groups who
19 signed a letter to Vice President Gore. They're involved through the dozens of groups that I've spoken with,
20 who have said, we don't want this material out in the marketplace. We don't want this material going out.
21 They're informed by the news articles and the television specials on things such as Paduca.
22 For us, here, it's a different animal at Paduca, than what is being done. But, think of the
23 words that are used when they talk about Paduca. They talk about radioactivity. They talk about release.
24 And the general public picks up on those buy words and they're concerned. They're scared. And all of
25 the science, all of the facts and figures are not going to alleviate their concerns. And it's these people in
the general public that buy the steel, that live in the buildings made by the steel, that buy the aluminum,
that buy the baby strollers that's made from the aluminum or the stainless steel. They're the consumers.

1 They're the people that we ultimately serve as industries. And if they're not comfortable, if they don't have
2 a buy in, then unless there is a tremendous plan for dedicated reuse or disposal that does not go out into
3 the general stream, then the process is going to be quite doomed.
4 Again, for those of you that survived the BRCs, remember that those folks are still
5 around. They're still concerned and they have some legitimate concerns. Because, if the perception is, I
6 don't want it, then that perception equates to I won't buy it and that will directly affect the steel mills, that
7 will directly affect the recyclers who are making products to be sold to the general public. And if we can't
8 provide them with a comfort level, this train is going to go right down the same track as BRC and then
9 we're just going to have a lot more frayed nerves in the process. And that is our biggest concern.
10 MS. STINSON: That raises a good issue, which is actually the subject of, I think, the last
11 slide, a question about the process of involving the public and other interest groups in this effort. Any
12 advice that you all have -- I'll go on to Paul's comment -- but any advice that you all would have about
13 conducting an enhanced process; what should ongoing participation be; how do you make it meaningful; and
14 how might the NRC proceed with engaging other stakeholders in this effort; how do we make these
15 discussions meaningful, in such a way that it attracts back some of the folks who are not able to be here
16 today. So, if you all want to think about that question and address that, as well.
17 We'll go onto Paul.
18 MR. GENOA: Paul Genoa with NEI. And I'll try to address a couple of comments that
19 were made, because I think this is what the real issue is, which is public acceptance of any regulatory
20 structure you put forward and I think it is important. We need to have a successful process that does build
21 public trust and confidence. And to that end, a couple of things were said.
22 Well, one, there's a concern that there will be a stigma attached to steel products, and I
23 certainly understand your concern. There is a stigma attached to certain nuclear industries, and that's a
24 tough thing to live with and we know what you're talking about and we don't want to create that stigma.
25 But, we have to talk about reality. The reality is the steel that you recycle today has radioactive material
in it. It has since World War II and it always will. And so, we have to keep it in absolute terms. It,
also, has lead and mercury and all those other things associated with it, in one form or another. But, there

1 are limits established for those things that allow you to sell it and have comfort with that. So, we have to
2 deal with those things.
3 But, you're right. There is a limit at what point you can detect that material or that
4 material really produces an effect or concern. And I guess there has to be a criteria, because there are no
5 absolutes in our world. The world is a very complicated place. In any material there are billions of atoms;
6 some of those atoms are radioactive; some of them natural, some of them manmade. That doesn't mean that
7 you can't use that material for something practical and you can't deal with it.
8 Without a criteria, you can't clean up facilities, or you'll defer them forever. Does it
9 make sense to take an entire nuclear plant and put it in a hole in the ground, you know; or does it make
10 more sense to decontaminate aspects of that plant, reduce the activity as low as possible and allow that
11 material to be concentrated and disposed of and controlled safely, allowing the other material to go by?
12 You can't process and reduce the volume of radioactive materials for disposal in a safe isolation, without
13 essentially volume reducing them, which means some material goes off. It is allowed to be released to the
14 environment and that's because you've reduced the radiological hazard associated with that. So, there's got to
15 be an approach there.
16 We do get confused and we talk about sources. And I guess the orphan sources getting
17 into the waste stream is a real concern and there's absolutely -- you heard earlier, that is a concern that
18 should be addressed. The EPA looked at the recycling issue and decided that's really where they wanted to
19 focus, getting those sources out. Now, there is a complexity. I understand the implications, that if you have
20 a clearance, that that may affect the monitors that are used to identify the sources. And I think you know
21 the reason is that the geometry of the detectors, themselves, are not ideal for finding those sources, you know,
22 allowing the material to go through in bulk, where you're looking for change in background, as opposed to
23 sorting material out over a larger area, where better coverage, less shielding of the detector and so forth.
24 So, we're trying to deal with a problem that could be caused, that's really an artifact of
25 looking for these sources that -- you know, it's real thing; I understand that. But, I'm not -- it's not clear
to me that a change in the development of the clearance standard would affect that, because, fundamentally,
materials are being cleared today. They always have been. They're coming in from overseas. They're

1 coming in from right here in this country, because that's part of doing business. Now, the question is
2 whether you want to do that business under one consistent health-based standard or whether you want to do
3 it through a patchwork quilt of criteria that has been established and evolved over the years. And I think
4 that's what we're trying to do, is get to that criteria that would be acceptable.
5 MS. STINSON: Jim?
6 MR. JIM TURNER: Well, I just had a question and I think you just answered it. The
7 question is: is what we're proposing -- what you're proposing to do anything -- are we going to release any
8 more material? Are we doing anything different than what we're already doing or are we doing it on a
9 case-by-case basis now? Will more material be released or is this just a streamline method of releasing
10 material -- or a consistent method? Is anything going to be different functionally in society?
11 MS. STINSON: That's a good question. I think we'll give NRC a shot at that question.
12 Don?
13 MR. COOL: That's one of the questions that we're, in fact, asking ourselves, as part of
14 this process. And in one sense, and I'll try to pick up on what Paul Genoa was talking about, that's going
15 to very much depend on the criteria that ends up being set. What you see in the issues paper as a range of
16 possibilities would be from things very similar to what happens today, to very much less, perhaps slightly
17 more. It would depend very much on the way in which the criteria is established, the kinds of
18 implementation that you would do. So, in fact, we're very much interested, and, in fact, I know that the
19 Congress is very much interested, they've asked us the question -- that exact question, how much material.
20 And we have given them essentially the same answer, in that it depends on the outcome of this process.
21 MS. STINSON: Art and then back to Paul.
22 MR. PALMER: Yeah, just one thing I want to do, a word of encouragement and
23 support, I guess, for NRC, but something I'm looking for from this is similar to what the FAA does. You
24 know, they do a tremendous amount of numerical analysis and probablistic risk assessments and when they
25 get all done, the FAA stands up and says it's safe, okay. And that's my challenge and expectation for NRC,
is that NRC will stand up at the end of this process and say this number is safe. This is a good number,
we're the guardians of this material, and we stand behind these numbers. And I think that will go a long

1 way to helping out what the steel industry concerns are. But, if NRC bails on that, this will wind up just
2 like BRC, a de minimis, okay. You really have an obligation to stand up and say, using our best technical
3 judgment, this is a safe number.
4 MS. STINSON: Paul and then Norma. Did you still have something, Paul?
5 MR. GENOA: Yeah, very briefly; Paul Genoa. Again, representing NEI and dealing
6 with the utilities in this country and some of the other users of nuclear technology, we believe that the
7 consistency of the standards is what important, because that helps to build public trust. And it's not
8 important for us to release more materials than we're currently releasing. But, if you have a criteria that is
9 nebulous, if you have a criteria that changes over time or can be second guessed, it puts you at huge
10 liability in doing what you're currently doing. It stops the kind of practices that are going on today, which
11 are good practices: to take radioactive material, clean it, concentrate it, make is suitable for long-term
12 isolation. But, you can't have a cleanup like that, that allows cleanups to go forward, if you don't have a
13 way to sort out the other materials that have been cleaned. So, yeah, my answer to your question is, I don't
14 think the flow of material will change significantly; and, if it does, I'd be surprised.
15 MS. STINSON: Norma?
16 MR. ROGERS: Norma Rogers with Allied Signal. I have a comment about the public.
17 From experience, I live in Paduca and so, everyday, I'm bombarded with the Paduca issue. But, I
18 understand more, because I'm in the industry. I have a friend that lives in California and I don't know
19 why she wants to live there. There's an earthquake fault. And the media tells me that's not a great place
20 to live. The media tell people that Paduca is not a great place to live, in a sense that the DOE has
21 supposedly released materials or whatever.
22 I do not believe from various things I've been involved in that the public is educated at
23 all on nuclear industry at all. Right now, the steel industry -- and I understand their concerns immensely.
24 Paduca sits across the river from where I am, yet no one has asked us, at our facility, any questions. Do
25 you have plutonium at Metropolis; they haven't asked. Well, no, we don't, but no one seems -- you know,
everything is Paduca. They don't -- it's whatever the media tells them.
The steel industry is the same way. They're facing this thing that the media is going to

1 put out there. And the general public is not educated on anything nuclear. I wish that some agency that
2 had some means could do something about this public issues. There are people involved in little EPA
3 groups -- I mean, environmental groups around the country and I don't think they know either, really.
4 MS. STINSON: Of course, if they were here, they might contest the suggestion that they
5 don't, in fact. But, there is certainly a need for mutual education on all sides about not only radiological
6 hazard issues, but a whole range of other issues. And maybe you guys can give us some guidance as to how
7 to promote that dialogue. John?
8 MR. KARNAK: I'd like to respond directly to what you just said. In 1997, we
9 published our technical reports, talking about what we looked at, in terms of recycling material. I
10 subsequently received over 250 letters addressed to me, personally, saying, do not recycle; do not allow any
11 of this material to be out; isolate us from all radiation. With each one of those -- I hand signed a response
12 to each one of those people -- I can tell you how long it takes to sign 250 letters -- and we included with
13 that a copy of a document that we have at EPA, called "Radiation Risk and Realities." It's about a four --
14 a six-page flyer that talks about some of the basis associated with natural radiation and so on and so forth.
15 And I can, also, tell you that not one of those 250 people called me back and said, oh, now, I understand.
16 MS. STINSON: I thin Vince and then we'll come back up here.
17 MR. ADAMS: First question --
18 MS. STINSON: Name and affiliation, Vince; thank you.
19 MR. ADAMS: Vince Adams, Department of Energy. How does the NRC plan on tying
20 this process and the standards derived thereof into the attempts by the IAEA or the efforts by the IAEA to
21 set up these standards to make it consistent, if you will? And the second question is, and it's kind of
22 related and it gets back to the public understanding of this issue, because I don't think that we're going to
23 get any place until we get the public's buy in: does the public really understand that we import materials,
24 equipment that is accepted from foreign countries on a daily basis that are derived from recycling of
25 radioactive scrap metal? Does it make any sense for us to be setting up standards that may even be more
rigorous or less rigorous than those that are set by foreign countries that make materials that come into this
country?

1 MS. STINSON: That's a good --

2 MR. ADAMS: I think that, you know, just the time to make things consistent, I think,
3 is going to be key.

4 MS. STINSON: Good question and comment. And Don will address perhaps your IAEA;
5 maybe, Gwen, from the State Department, might like to address some of the import/export issues.

6 MR. COOL: Okay, thank you. The U.S. Government, as a whole, is trying to work very
7 closely with other governments and the International Atomic Energy Agency to look at this issue, to look at
8 the loss source, orphan source issue, because they really, as I -- several of you have mentioned, do have quite
9 a lot of interface. Gwen Bower of the State Department nearly sole job these days is an organization called
10 the International Radioactive Source Management. It's a federal government interagency group, headed by
11 the State Department, looking at these exact issues, interacting with the IAEA. In fact, representatives of
12 IAEA will be in the United States, I think maybe next week, if I have the dates right, interacting with the
13 various federal agencies on some of the activities that they have going on and how the federal government
14 can both assist in that process and inform that process, so that we stay informed and so that we can provide
15 what we are learning here in forums like this and in the technical activities on the IAEA and other
16 processes.

17 MS. STINSON: Gwen? And then we'll come back to Ed and Val.

18 MS. BOWER: And it is going to be next week actually, when those folks are going to
19 be here. We're going to have some lengthy discussions about coordinating our efforts for theirs.

20 MS. STINSON: Your name and affiliation again?

21 MS. BOWER: Oh, I'm sorry, Gwendolyn Bower, Department of State. But, I do think
22 that perhaps those from NRC and EPA can further address some of the issues about coordinating clearance
23 standards, because I do know that there are some efforts to at least consult with the IAEA and work
24 together with them. I think one of the issues we have to look at is: are we going to preempted by a
25 standard set by the EU and don't we want to actively engage in the process early and come to the table and
make sure that we have our issues addressed, as they're going through and setting what they consider to be
international guidelines. And we probably want to be involved early with that.

1 MS. STINSON: Ed and then Val. Yeah, EU, being the European Union, of course.
2 MR. REITLER: Ed Reitler from Westinghouse. Addressing the question as to whether
3 materials would be dumped on the public, as a result of any rule making, I wrestled with this question
4 myself, as a health physicist, ever since I heard about the rulemaking. I can only answer for my facility
5 and myself, as a health physicist. I happen to have among my responsibilities, responsibilities in the area of
6 contamination control and pre-release of materials from our plant. We currently comply with a regulatory
7 guide, the 1.86, which is part of our license. It's, also, a Nuclear Regulatory Commission regulatory guide.
8 As part of that regulatory guide, this concept of ALARA. There are limits for release --
9 prerelease of materials; but, as an overriding concept in that regulatory guide is that materials must be
10 decontaminated to as low as reasonably achievable. As a health physicist at the Westinghouse Longrich
11 Fuel Plant, I comply with that concept. I would hope that the NRC would, also, incorporate ALARA into
12 any rulemaking that would apply here.
13 We release materials at a very small fraction of the Reg. Guide 1.86 limits, mostly
14 because of the ALARA concept. As a health physicist, I promote that at our facility and I would hope
15 that every other nuclear plant would, also, continue to maintain that philosophy on release of material,
16 irrespective of the text of the rulemaking that the NRC comes up with.
17 MS. STINSON: Okay, thank you. Val, let's make a comment. We'll let John make a
18 last comment and then take a break before we turn to the next subject.
19 MR. LOISEL: Well, I just -- Val from Armor. I just want to lend some sort of a
20 consensus. There may be concensus in this room among several parties, but certainly between myself and
21 Mike Matea from ESRE on the concept that this train doesn't go anywhere until we build the public
22 confidence on the issue and with the public perception equals the reality.
23 MS. STINSON: Okay, thank you. John?
24 MR. KARNAK: John Karnak, EPA, in case somebody doesn't know that yet.
25 MS. KAGAN: We just have to do it every time, even if we know.
MR. KARNAK: Okay. I just wanted to add a little bit to what Gwen said and just
provide a little bit more update for those of you who may be interested. We are working -- the U.S.

1 agencies are working with the International Atomic Energy Agency with a document called, "Tech Doc.
2 855," which is a preliminary document dealing with release of materials and we've been working with them
3 for about close to a year now to update that document. Unfortunately, when we get into the international
4 arena, if you think politics are bad in the U.S., they are 10 times worse there. And when 855 first came
5 out, it tended to be a consensus document, which means it wasn't really based on any good science; it was
6 kind of a conglomeration of everybody's -- but, you didn't hear me say that.
7 What we've done, I believe, in the U.S., is to bring some science to bear on that process
8 and they've been looking at the technical work we've done here in the United States, and we do have an
9 opportunity to help to encourage that standard -- the revision of that standard to go in the direction to be
10 consistent with what we are doing. Bear in mind, however, we are one country out of 140 that are dealing
11 with this, so what we want and what we do isn't necessarily what's going to happen.
12 I just want to, also, mention that in this case, we're dealing with a standard for release of
13 material and this material can go worldwide, unlike many of the other standards we deal with. You know,
14 standards for a power plant affect the power plant and the people directly around that real estate. So,
15 there's a real difference between standards for clearance -- release of sites or cleanup of sites or dealing with
16 medical sources used in the United States and that sort of thing, where typically we tend to be a little more
17 conservative than some of the other countries; whereas with this standard, it's going to really be affecting
18 everybody pretty much equally, because of the fact this material does literally move around the world.
19 MS. STINSON: Okay, thank you. Thanks to everyone. That was a really helpful
20 opening discussion. I have 10:20 right now. Be back and ready to go with the next discussion at 10:35.
21 Thanks and coffee is complementary from the hotel, so help yourself.
22 [Recess.]
23 MS. STINSON: I think we're ready to start the next section. We're going to ask Trish
24 to open it up with a few comments and then proceed in a similar fashion, questions of clarification and
25 discussion. Trish?
MS. HOLAHAN: Okay, thank you, Barbara. Well, I think some of the points that I'd
like to get into some more discussion of in this session is -- we've already touched on in the first session,

1 and, again, I look forward to continuing what we're getting. But, what the overall question is, is: how does
2 what we are discussing today fit into the overall picture? And I think we've already heard a little bit of
3 this; but, the first question is: what types of solid materials and what NRC licensees are we talking about
4 today?
5 Well, I think, as Steve had mentioned earlier and what is in the issues paper indicates
6 that NRC has developed the technical background information and is continuing to develop further
7 information on metals, concrete, and soils, metals to include steel, aluminum, and copper. But, as I say, there
8 is information on concrete and then, also, soils. And these are materials that are present at or used in
9 license facilities. This includes equipment, piping, furniture, etc.
10 But, a question is: what other materials should be considered and should other materials
11 be considered now; or should we address certain materials currently and then continue to look at other
12 materials, such as wood, glass, sewage, sludge, further down the road? Most of these materials will have no
13 radioactivity, we heard that this morning; although, some materials can have activity, either on the surface
14 or throughout the material. The amount of the radioactivity depends on the materials location or use and,
15 also, the different types licensee types.
16 Most of NRC's licensees are users of sealed sources, in which the radioactive material is
17 encapsulated. This includes a small R&D, research and development facilities, industrial users, gauges,
18 radiography cameras. And as I say, those would typically have no contamination associated with them,
19 because the material is encapsulated.
20 Other licensees, to include the power reactors, as well as the non-power reactors, research
21 laboratories, hospitals, manufacturing and distribution facilities would generally have material that will fall
22 into one of three categories. They'll have areas that will have no contamination. This could include clean
23 or unaffected areas, equipment in clean warehouses, hospital waiting rooms, university office areas, metal
24 ventilation ducts in a control room in a reactor.
25 Secondly, there'd be process or storage areas that may have materials with small amounts
of radioactivity, and these would be low because of contamination and control procedures, and would include
certain lab areas, certain reactor buildings.

1 Finally, in the third one, it's not on the slide, but it's material that's used for radioactive
2 service, where you can get activation and could generally have higher levels of radioactivity and wouldn't be
3 considered as candidates for either release, as we're discussing here. As I say, currently, there's about 100
4 reactors at NRC licenses and then there's about 800 facilities that includes labs and universities and
5 medical institutions, as well as about 1,000 hospitals and clinics, in addition to the broad scope facilities.
6 The next question, then, is: what is the potential dose that we're talking about. We've
7 had discussions going back and forth as to what is the criteria and how does that compare to the dose that's
8 received from other radiation sources. Well, as laid out in the issues paper, one of the alternatives discusses
9 potential dose criteria of .1, 1, or 10 millirem per year above background, or zero above background -- that
10 is no dose above background.
11 Well, when we say background, what types of doses are we talking about? How does that
12 compare? Well, as many of you may know, we're surrounded by radiation and the average U.S. natural
13 background is on the order of about 300 millirem per year, and I'll get into that a little bit more in the
14 next slide, and it varies from about 100 to 1,000 millirem per year. NRC's public dose limit has been set
15 at 100 millerem per year and that's the limit at which we believe the public is adequately protected from
16 licensed activities. The diagnostic x-ray is on the order of about 40 millirem and a round-trip
17 coast-to-coast flight is on the order of five to 10 millirem. So, those of you that may have come here from
18 the west coast would be getting a dose of radiation.
19 In addition, it's currently allowed that the dose from the use of recycle -- I'm sorry -- the
20 dose from the use of caleche recycled into concrete blocks is on the order of 10 millirem per year, and that's
21 a material that NRC does not regulate, but it is currently allowed. Also, the NCRP, the National Council
22 on Radiation Protection and Measurements, considers one millirem to be what they term a "negligible
23 individual dose," and that's the boundary below which the dose can be dismissed from consideration in the
24 risk calculations. This number of one millirem is, also, consistent with what IAEA and the European
25 Community has established as a criterion for exemptions and for release for limited quantities of material.
I mentioned that I would discuss a little bit more the annual dose to the U.S. population.
And in this pie chart, we can see that the majority of the dose is from Radon. And, again, we put on

1 here that it's about 200 millirem per year, the total dose of around 360; but, it does vary and it varies
2 depending on where you live and the types of ground structures that your house is built on.
3 Also, there are naturally occurring -- and I apologize that we weren't able to clearly
4 delineate that, but the Radon, food and drink, soil and building materials, and cosmic, are all naturally
5 occurring sources of radiation dose that we're all exposed to on an annual basis; the food and drink being
6 that which we eat primarily from potassium 40 or potassium that's in the environment. As I said, the soil
7 and building materials, again, depending on whether or not you live in a brick home versus a wood home,
8 you would get a higher dose of radiation just from the building materials. The cosmic radiation from space
9 would, also, vary across the country, depending on the altitude of where your home is above sea level.
10 Then, there are other manmade sources of radiation. Those include, as already mentioned,
11 medical, both x-rays and nuclear medicine procedures; consumer products, including smoke detectors, watches,
12 clocks, and other sources; and then other, which would include remnants from fallout radiation and other
13 sources of radiation throughout the country. So, as I say, this is sort of an estimate, but it does vary
14 considerably, depending on location, lifestyle, and your activities.
15 The next question that we got into a little bit earlier is: how does this relate to what are
16 other countries doing, other agencies, and the states doing, with regard to the control of this material? As I
17 mentioned earlier and John, also, addressed, that EPA sets generally applicable standards. However, EPA is
18 not considering rule making at this time, although they have completed technical studies on the
19 environmental impacts of recycling. However, they are working with IAEA, Department of State, and other
20 federal agencies, looking at the issue of setting guidelines for import and export of contaminated materials or
21 products. As I mentioned, NRC and EPA does have, and is continuing to have, coordinated efforts in this
22 area.
23 Another federal agency, the Department of Energy, also, operates facilities that are facing
24 similar issues regarding the disposition of solid materials, and they have developed criteria for release of
25 material, which is contained in a DOE order. And there are criteria in there consistent with the existing
NRC guidance that we've, also, mentioned earlier and the Reg. Guide 1.86.
In addition to what the federal agencies are doing, it's, also, important to look at

1 consistency with standards set by other nations and the international agencies, because of the import and
2 export issues. Different standards could create confusion and economic disparities in the international trade.
3 Currently, the IAEA and European Commission, as well as individual nations, are setting standards. The
4 IAEA has draft standards that are containing clearance levels for individual radio nuclides, and the
5 European Commission plans to implement a one millirem per year standard by May of 2000.
6 Also, in terms of the states, individual states have responsibility -- let me step back a
7 moment. NRC sets standards for atomic -- material that's regulated under the Atomic Energy Act or
8 material that is part of the fuel cycle or produced in a reactor. Individual states set regulations or
9 standards for naturally occurring material, as well as material that is accelerator produced. There are 31
10 states that have assumed the regulatory authority from NRC and we refer to these as "agreement states."
11 All states have the authority to approve the release of materials that are not regulated by
12 the NRC and the agreement states can, also, approve release of AEA solid materials. There is an
13 organization of state radiation agencies that has established a committee to look at the issue of control of
14 solid materials. And similar with the international efforts, it's important to look at the need for consistency
15 among state standards, so that materials available for use in a state could be generated in another state from
16 where it was released. So, we need to look at the overall issue of the need for a consistent standard.
17 And at that point, I'd like to, again, turn it over, to open it up for discussion and
18 perhaps focus a little bit on the international, as well as the state efforts on this issue and other questions
19 that may come up.
20 MS. STINSON: Great, thank you. Any questions of clarification? Anything you saw in
21 the slides or heard in Trish's opening that gave rise to questions? Mike?
22 MR. MATEA: Mike Matea, with ESRE. How does -- let's take a hypothetical of one
23 millirem per year. How does that equate to what you will measure, if you're standing in front of something
24 that's being released, that is being released at the one millirem per year exposure? I put a detector on it,
25 what am I getting?
MS. STINSON: Can you answer that, Trish, or you want to --
MS. HOLAHAN: Yeah, I'm going to turn it over to Tony, to address that.

1 MR. HUFFERT: Tony Huffert, NRC. Bob, please jump in, since you're the project
2 manager responsible for the Nu Reg. 1640. I'll try to answer your question, Mike.
3 You have to translate the dose to radio nuclide concentration levels. So, what we would
4 measuring is not dose at one millirem here; we'd be measuring radio nuclide concentrations. Nu Reg. 1640
5 provides a method for translating does to radio nuclide concentration and vice versa. As Don Cool pointed
6 out earlier, we do not have a firm number established. That's part of this whole process. Nu Reg. 1640 is
7 based on one millirem per year, because that's a fairly easy unit to change to three, four, five millirem.
8 If you take a look at the values in Nu Reg 1640, they do differ from those in Reg.
9 Guide 1.86, and I'll talk about that in the next section. So, what you have to do is go to Nu Reg. 1640
10 and take a look at the values of radio nuclide concentrations at one millirem per year and see if your
11 detectors can measure that. And it is over -- it does vary from Reg. Guide 1.6.
12 MR. MACK: If I may follow on -- I'm Bob Mack from NRC. You'll hear early
13 tomorrow morning that the answer to most questions is it depends. And once again, it depends on what
14 radio nuclides you're specifically talking about. You may measure zero, because you simply can't detect it
15 with ordinary equipment or at, you know, a distance of a meter or whatever -- how far you would typically
16 stand. Or it may be some small fraction of 100, you know, small fraction being 10 millirem or less. I'm
17 not saying exactly what it would be, but it would be, you know, low like that per year, not per hour. So,
18 it would be a very low dose rate, so it would be difficult to measure.
19 MS. STINSON: Did you have a follow-on, Mike?
20 MR. MATEA: I guess the follow up --
21 MS. STINSON: You have to use a mic, I'm sorry.
22 MR. MATEA: I guess the follow up is, Tony --
23 MS. STINSON: Mike Matea, again.
24 MR. MATEA: -- what you're saying is that it depends on the radio nuclide that is there,
25 as to what you would measure, if it was released, that one millirem per year of dose?
MS. STINSON: It sounds like they're saying yes. Other questions for Trish -- questions of clarification, before we move onto exploring some of the issues? Yes, Val and the Randy.

1 MR. LOISEL: Val, Armor. One clarification from the outset, in a hand held instrument
2 that reads millirem per hour -- you know, I want Michael to hear this.
3 MS. STINSON: Mike Matea, if we could just have you -- he's going to answer, at least
4 from his perspective, some part of that.
5 MR. LOISEL: In your garden variety hand held instrument, which reads an MR per
6 hour, not MR per year, you're clearly well below the scale of detectability. You won't see it.
7 MS. STINSON: Okay. Randy and then --
8 MR. CLARK: Randy Clark with Westinghouse. My question really relates to that. I
9 look at the practical aspects of trying to clear equipment in the field and I guess my question is to these
10 experts is: do we have hand held instruments that can do this or is this state-of-the-art laboratory
11 equipment, which, in most cases, is not practical for large volumes of equipment clearing?
12 MS. STINSON: Paul?
13 MR. GENOA: Yeah, Paul Genoa, NEI. One clarification or point I'd like to make on
14 Trish's presentation. Earlier, you were sort of building categories of equipment, from no contamination to
15 potentially highly contaminated. And you just made a statement that, you know, it's not expected that those
16 materials would be covered under this type of a clearance. And, certainly, without treatment, they couldn't
17 be. I guess I just want to make the point, is that there are opportunities within a licensed condition or
18 structure or a licensed facility to pre-treat, decontaminate, whatever you want to say, materials that, in fact,
19 may have very high levels of radioactive material associated with them. But, because of the type of the
20 material they are, they are easily decontaminated to levels that would, in fact, perhaps approach absolutely
21 clean, and you may not even be able to determine that there's any radioactivity there.
22 So, I just didn't want to leave the impression that all materials -- or certain classes of
23 material would never be appropriate under this. Certainly, the point is, when you're all done and you have
24 to apply a criteria, that's the test. You may take steps between its current use and that test, such as
25 decontamination.

And I guess I would comment, to help you understand that the structure -- and the gentleman up here, we are very interested in a practical criteria that can be implemented in the field. We

1 are very fortunate, radioactive material is a unique material, has unique properties. Fortunately, we've
2 learned how to get benefit from many of those properties. And one of the reasons we can control it, because
3 we know if large amounts of radioactivity is not controlled properly, it can be harmful. We know that we
4 need to control it properly. Fortunately, technology has given us the tools to measure this material, at
5 extremely low levels, at levels most people would consider well below a health threat. So, that's the good
6 news.
7 The bad news is if you ratchet the levels down so far, that you need what we would call
8 forensic science to determine, in fact, that no licensed material is present. It does become burdensome. It
9 would not allow this gentleman up here to make a criteria on his crane that is acceptable without undue
10 burden, well below the benefit -- risk benefit that you would have to deal with. So, there needs to be a
11 translation. Scientifically, we know how to do it; but, ultimately, ending up with screening factors that
12 allow you to do that in the field is a challenge, recognizing that the world is a radioactive place to start
13 with.
14 MS. STINSON: Are there questions of clarification or are we ready to move on to
15 discussion? Art?
16 MR. PALMER: Yeah, if I could -- Art Palmer, ATG. If I could just split an issue
17 here just a little bit. The dose consequence doesn't have to be the same for all scenarios. Now, you could
18 certainly have a one millirem per year dose consequence from recycling and perhaps a 10 millirem per year
19 or decommissioning standard 25/15 for disposal. But just -- you could customize it a little bit.
20 MS. STINSON: Let's -- if you can keep that particular suggestion in mind, when we get
21 to talking about alternatives and different regulatory approaches, we probably would like to elaborate on
22 that.
23 Other questions for Trish? Let's go back to the first slide, which is where we are.
24 Materials -- other materials that either -- well, comments on any of these materials, as suggested, but other
25 materials that should be included, kind of building on some of the earlier comments of today. Paul?
MR. GENOA: Yes, Paul Genoa, NEI. And while I recognize that the original basis
document tackled the readily identifiable materials that most likely represent maybe the easiest things to go

1 after and perhaps those that have the most consequences, you know, metal, concrete -- metal, three types, and
2 concrete. In fact, for a clearance standard to be practical from our perspective, it needs to cover all
3 materials that would leave a nuclear facility, because we have to apply a criteria. And we'd like that
4 criteria to be consistent. .so that's why we do like the concept of a dose-based standard, recognizing there
5 are implementation issues that have to be worked out. So, we would like to see a standard cover all
6 materials and we understand that, you know -- that puts a challenge, a burden back on you to try to
7 develop an appropriate basis for that. But, we think that basis is out there and available.
8 And I was hoping that to end the discussion of what goes on today, that we would -- I
9 know you're trying to paint a picture of how this fits in with what the NRC currently does to protect
10 public health and safety. And I think it's important to sort of get on the record, the ways that radioactive
11 materials are controlled day-to-day in our environment, and see how this release issue fits into that, because,
12 in fact, radioactive materials are permitted for release by facilities in waste water or ventilation air and
13 exhaust. Materials are exempted from regulatory control, if they are at low quantities, limited quantities for
14 use and sources and other applications. There are radioactive materials that are allowed out into the public
15 in articles and instruments, like the smoke detectors you mentioned.
16 There are no controls on these materials once they're out in the public, so they end up in
17 our landfills and they end up in recycling and they end up in other places. People that are treated with
18 nuclear medicine at hospitals are allowed to be released from the hospitals at a certain point. There are
19 still radioactive materials associated with their body and their selves and their clothing and everything else.
20 That has to be reflected. A certain amount of radioactive materials allowed into sewage effluence that go
21 to public treatment. That is out in the environment. Radioactive material is released from facilities under
22 a variety of criteria. Certain facilities are allowed to incinerate their ash -- or their trash. There are
23 effluence from that, that are safely controlled. Some of that ash and some other materials that are not
24 incinerator are allowed for disposal at landfills.
25 So, what I'm trying to do is make sure that there's a broad understanding of the range of
applications and controls, which I believe are safe, that are currently implied by the NRC on -- and by
agreement states, on the use of radioactive materials. But, they are quite wide, quite broad, and represent a

1 bit of a challenge. If you want to go out and separate one activity, independent of all those, and exert
2 certain controls on it, you run into trouble, such as being able to verify that material found somewhere, say,
3 a landfill, is, in fact, from one licensee or another licensee.
4 MS. STINSON: Thank you, Paul. Other perspectives? Other reactions to either what
5 you see here suggested or other materials that might be incorporated? Vince?
6 MR. ADAMS: Vince Adams, Department of Energy. I just want to go back -- the
7 questions are related to this slide here. I just want to go back to Mike's question again, because I think it's
8 a key question that we've got to address. I mean, the question keeps popping up every single day. Here,
9 you're attempting to set a standard of, let's say, one millirem per year. How are you going to convince John
10 Public that you are able to measure to that level? It doesn't make sense to that person or individuals that
11 you're setting these standards, but you can't tell me or convince me that you are able to measure to these
12 standards. And I think it's a key question that I get from time to time.
13 MS. STINSON: Maybe somebody who has some experience with working with either
14 members of the public at your facilities or elsewhere, in making this translation from dose to a national
15 measurement of exposure. Other issues? Other questions?
16 MR. LEMASTRA: No, to answer that -- to answer your question -- Tony Lemastra,
17 AISI. Assuming that the data in Nu Reg. 1640 is good and valid, if you look at energetic gamma
18 emitters and assuming that the surface and the volumetric concentrations that are presented in Nu Reg.
19 1640 are valid, taking that data and using the calculation model for a large mass of material, you will be
20 able to detect using today's state-of-the-art scrap monitors, the portal scrap monitors, anywhere from about 14
21 to I think as high as 21 of the radio nuclides that have a decent gamma emission at the Nu Reg. 1640
22 level.
23 So, to answer Mike and to answer -- was it Vince -- Vince, if Nu Reg. 1640 is based on
24 a one millirem per year public dose limit, then when you back calculate to concentrations and set your
25 concentrations for release, if you have a sufficient mass, a few several tons, five, ten tons of material in a
vehicle and that material emits gamma, then you will be able to detect it.
MS. STINSON: Mike?

1 MR. MATEA: Is that because of --

2 MS. STINSON: Mike, can you just, again --

3 MR. MATEA: Mike Matea from ESRE. Is that because of the -- because it accumulates

4 and that's why you detect it, whereby if you were to be issuing a ton at a time, you wouldn't detect it; but

5 if you put 10 tons in a container, then the cumulative causes a detection?

6 MR. LEMASTRA: Tony Lemastra, AISI. Yeah, it's a function of both the mass and the

7 concentration. Obviously, the higher the concentration, the less mass you need; but, you definitely need a

8 sufficient mass, and that's probably going to be in the range of a couple tons right now.

9 MS. STINSON: Other issues associations -- oh, I'm sorry, Vince.

10 MR. ADAMS: Vince Adams, U.S. Department of Energy. Does the Nu Reg. carry

11 procedures for making sure that they have a physicist technician who is measuring, capture what you just

12 said, to make sure that they are doing the correct measurements --

13 MS. STINSON: Go to Mike, Bob --

14 MR. ADAMS: -- that deflect?

15 MS. STINSON: Bob Mack from NRC can address that.

16 MR. MACK: Yeah, Bob Mack, NRC. I'd like to back up just a little bit from your

17 question, Vince, to Tony's and to emphasize that Tony's comments had ingrained in it an assumption that if

18 you assumed one millirem per year as a standard, then thus and so. One of the first points that I'm going

19 to be making tomorrow morning is that the Nu Reg. is a tool and does not assume a standard. But for he

20 purposes of comparison, one needs to make some kinds of assumptions like that and that's reasonable to do,

21 as Tony did. But, I wanted to emphasize that that was an assumption and the NRC has not made a dose

22 level, at this time.

23 Now, with respect to Vince Adams' question. The Nu Reg. h as stopped short of

24 implementation procedures. It simply is a tool for assessing doses, and I'll explain more of that in the

25 morning. But, it does not go into measurement and implementation, per se.

MS. STINSON: Vince, go ahead.

MR. ADAMS: Vince Adams, U.S. Department of Energy, again. I guess the overall

1 arching question is: should we -- when we're considering -- or when the NRC is considering a standard,
2 shouldn't there be, also, trying to consider the technology that goes along with it? To the public, again, it
3 doesn't make sense to tell the public that one millirem per year does is safe, when you cannot convince the
4 public that you're going to be able to measure one millirem per year dose. And I think that's the
5 overarching question: how do you tie technology to the standard that -- I mean, you can't separate the two.
6 MS. STINSON: Anybody have thoughts on that? Go ahead, Steve, and then we'll go to
7 Art.
8 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. That is something that does need to
9 be addressed. If we proceed with this rule making, that has to be done. That's part of the implementation
10 phase. That's part of the regulatory guidance that would have to be issued with the rule. If we came up
11 with a standard, it has to be able to be implemented throughout the industry.
12 Now, over the years, we've talked about being able to do practical surveys, hand held
13 instruments. Part of this potential standard here may involve the use of more sophisticated radiation
14 instrument. I mean, that -- if we come up with a value, let's just say .1, that drives your detection threshold
15 much lower. If we come up with a one value, it escalates. So -- but, that is -- I mean, we're still at the
16 very early phases here. If this rule making progresses, then there are milestones that would have to be
17 developed, to come up with the instrumentation standards needed to implement this. So, it is in the plan,
18 but we're still at the very front end of this standard. So --
19 MR. ADAMS: Vince Adams, again. I guess I'm --
20 MS. STINSON: Can you use the mic, get you on the transcript.
21 MR. ADAMS: I guess what you're saying, then, there's a possibility that you can
22 establish a standard and you're not going to be able to measure it.
23 MR. KLEMENTOWICZ: I don't think that would be realistic. I don't see how we could
24 establish a standard that could not be implemented. That would be like writing a rule -- a law that no one
25 could abide by.
MS. STINSON: So what you're saying is that the detectability and the equipment that
we'll use will factor into the analysis, at some point?

1 MR. KLEMENTOWICZ: That would have to be factored into the analysis.

2 MR. ADAMS: Well, is that part of this rule making process here, in factoring the

3 technology? What I thought I heard you just say is that this here if the first phase, you want to establish

4 a standard and try to come up with a way of implementing it. Is that what you said?

5 MR. KLEMENTOWICZ: Pretty much, yes.

6 MR. ADAMS: Okay, suppose --

7 MR. KLEMENTOWICZ: But, let me just point out, even at very low concentrations, the

8 radiation detection instrumentation technology has advanced significantly from the old hand held GM

9 detector. That's still pretty much a standard throughout the industry. There are -- at scrap yards, they use

10 very sophisticated beta scintillation detectors, you know, $100,000 pieces of equipment that detect very low

11 levels. Now, at power reactors, they will buy a $50,000 germanium detector, which is extremely sensitive,

12 and detects down to environmental levels, to see worldwide fallout. It's my opinion that the radiation

13 technology, the instrumentation is already available .

14 We can argue about the word "practical," you know. Yes, it's really nice to buy a two

15 hundred or three hundred dollar GM detector, but we do have to consider the overall safety standard of

16 clearance of material. And if the levels are such that we have to do away with GM detectors, well, maybe

17 that's the way it's going to be. An dos, then costs -- that's' part of the consideration, the cost of this

18 instrumentation to balance with the ability to clear material. But, this is all in the whole mix.

19 MR. ADAMS: But what I -- I think the point I'm trying to make, to me anyway, it

20 doesn't make sense to try to set up a standard, but you're not sure whether you're going to have some --

21 have an instrument to measure at that level, because when you set up a standard, what you're telling the

22 people is this here is safe level. You can't go back after that and say, well, guess what, we do not have

23 instrument to measure this level.

24 MR. KLEMENTOWICZ: Right, that needs to be considered as part of this entire process.

25 MS. STINSON: Trish is going to wrap up this last interchange.

MS. HOLAHAN: I just want -- Trish Holahan, NRC. I just wanted to say that, yes, you -- those are all sort of very valid concerns that we are looking at, as part of this whole process. And

1 the whole issue of the implementation and how we would actually do that would be considered throughout,
2 as Steve mentioned.
3 MS. STINSON: So, it sounds like --
4 MS. HOLAHAN: And we are looking for input and comment on the detectability and
5 needs, in terms of the instrumentation.
6 MS. STINSON: So, it sounds like, Vince, it's not a sequential thing, where you can't go
7 back and revisit the original precepts. Art?
8 MR. PALMER: Yes, just real quick comment, as far as what can and can't be seen at
9 one millirem per year. Straight up, you can't see one millirem per year with hand frisking instruments. I
10 don't think there's any instrument that will do that, that's out there. Secondly, you can, however, see mixed
11 fission, mixed activation products very reliably with large counting instruments, either, you know, similar to
12 segmented gamma counter or large area detectors, anthracene detectors, or something like that.
13 MS. STINSON: Okay. Other comments? Randy, you've been waiting a while, and we'll
14 go to John.
15 MR. CLARK: Randy Clark with Westinghouse. Following up on that, we certainly
16 have to have reasonable instrumentation capability to measure. But, there's another side of that, also, and
17 that deals with some of the literature I read here, in terms of dose calculation, talks about end pathways and
18 defining all the reasonable pathways, which this -- which the public can be exposed to this material, which
19 is part of a normal analysis. You know, you've got a matrix of pathways versus exposure and you calculate
20 it all out.
21 And I'm a very practical guy. I'm an electrical engineer; I'm not really a scientist. But,
22 I sell equipment to people. And every time I do one of these deals -- we rarely have a piece of
23 contaminated equipment, but when we do and I want to clean it up, the first question that I ask is: how
24 much is it going to cost me and how much time is it going to take. And they -- and I say, give me a
25 scope of work, give me a cost estimate, because these things are not free. Even on the simplest basis, we've
done a gamma spectroscopy, in order to prove that a well was thorium, which is normal welding material,
rather than contamination. We've been a lot of places and they all cost us money, and sometimes $50,000

1 for something that wasn't worth much more than that.

2 And my point is that if I get into a practical situation and dose calculation and pathways

3 and I have not only do the calculation, get the scientific data behind it, show the matrices, argue and

4 present the matrices between -- before my internal people and external regulators, too, forget it. I ain't

5 going to go there. It's going to go to the waste stream. I'm going to say, hey, guy, that piece of equipment

6 is not available for sale. So, there's a practical side to it, so what happens to it? I think we need to keep

7 in mind that the way stream is where it goes. You know, if we can't do things reasonably, we can't detect

8 it, we've got -- where we have to go to the laboratory 50 percent of the time to measure that rate, if it's

9 impractical, it's not cost effective, it don't happen and all you do is push it to the waste cycle.

10 Thank you.

11 MS. STINSON: Good, thank you. I, also, want to make sure we turn our attention

12 ultimately to the last slide. We'll take the comments in order, I think John and then Ray. But, do people

13 have any thoughts about consistency with international standards and what's going on with IAEA or other

14 activities. John?

15 MR. KARNAK: Just making two real quick assumptions. When I think about one

16 millirem per year and thinking about the state-of-the-art detection systems that are at recycling facilities,

17 whether they're scrap yards or whatever the type facility it may be, steel mills, whatever, these detectors don't

18 measure in millirems or microrems per year. Well, you do that math. They measure per hour. And when

19 I break down millirem per year, we're talking about, what, 2.7 or so microrems per day, which is, what, a

20 little over -- I can do it in the math right -- a little over a 10th of a microrem per hour. And I'm not

21 sure that we can measure that with a most sophisticated system that's out there today, in a 10th of a

22 microrem per hour, assuming that the whole load, of course reads a 10th of a microrem per hour. But, I

23 haven't heard anything in any of the meetings about setting dose rates over a period of one time. All I've

24 heard so far is one millirem, or whatever the limit is going to be per year. I think we, also, need to

25 address what is going to be per hour.

The second comment is I think we need to be real careful, because there is a tremendous amount of competition in recycling and steel, foreign steel coming into the U.S. and competing with the U.S.

1 market. As far as a carbon steel being recycled, I don't think it's even a hiccup, if all of it gets recycled or
2 none of it gets recycled. It's not going to affect -- it's not going to have an economic impact, as far as
3 raising or lowering the price of scrap metal or steel, except for public perception, which may be reality, as
4 we stated earlier.
5 But, I think we have to be careful in the areas of nickel and copper and things like that,
6 which are not sold by the ton; they're sold by the pound, which can have a significant economic impact, if
7 we don't have a limit in the U.S. and the limit is passed in the IAEA, so that that material now comes
8 into the U.S. and competes with ours.
9 MS. STINSON: Any responses to Ray's first question?
10 MR. LEMASTRA: Yeah, Tony Lemastra, AISI. Part of the problem of looking at a
11 dose-based number, millirem per year, and then taking that and back calculating to millirem per hour,
12 micro rem per hour, pico rem per hour, is that you're not dealing with what the -- you're not dealing the a
13 flux. And a flux is the number of gamma rays that are coming out of the material. It's true that if you
14 had a source that was emitting at a rate of .1 microrem per hour, you'd never measure it with the
15 equipment. But, when you deal with a massive material that's putting out so many decays per second and
16 those gamma rays are going out, your detectors are essentially measuring that. And, yes, if you take --
17 again, using all the assumptions that I said before, based on the Nu Reg. data, if you have a mass of, say,
18 five tons of material that's contaminated at that limit, you will definitely detect it, based on the one
19 millirem -- again, assuming that the one millirem is valid.
20 MS. STINSON: Okay. Dick, I think, has a comment in the same area.
21 MR. DUBIEL: Dick Dubiel, with Millennium Services. We're a consulting firm here in
22 Atlanta that does a lot of surveying, for purposes of release for decommissioning activities.
23 There is obviously some confusion that I've noted. There's an interest in measuring down
24 at the one millirem. And I think in the discussions tomorrow, I would expect that the concepts of 1640
25 kind of flushed that out. 1640 gives an opportunity to turn the one millirem per year, which is without
question a number that is very difficult to measure using dose rate instruments, into activity levels, in terms
of surface contamination and either DPM or Becquerel's per hundred square centimeters, or some unit of

1 surface area, or pecocuries per gram.

2 What it really boils down to is the licensee who is trying to eliminate the material, is

3 going to be forced to come up with a program of measuring down to contamination levels. Those

4 contamination levels are, then, able to be converted to a dose, to a maximum, or worse case, recipient

5 through calculations. And I think it's always been important to me to recognize that we have to go the

6 calculations, because the values are so low, they are virtually impossible to measure on a unit of time, an

7 hour, a minute, etc.

8 But, I, also, want to point out that in terms of the monitoring, I've done a review of

9 1640. I do not want to say that I have validated all of the computer codes, but I believe they have been

10 run through the mill and are probably pretty good. The values that 1640 promotes, in terms of surface

11 activity or volumetric contamination, at one millirem, are absolutely values that can be seen. I think that

12 if we were to implement today on a one millirem, that the monitoring industry would be -- go through an

13 evolution. We would modify our practices slightly. It would not have to be a resolution. I think if we

14 went to .1, it may start approaching a revolution. I think the thing that is most concerting to me, though,

15 is when we start looking at values that -- let's say, zero, because I don't know what zero is. Zero, to me, is

16 nothing detectable above background. And one of the things I found through the last few years of

17 measuring -- literally taking upwards of 10 to 20 million measurements, is that background is not a

18 number. It is a spread of numbers. It has both spacial and time variability. And I think the most

19 difficult thing that the industry is facing is when we're faced with numbers of either zero or none detectable,

20 background makes that opportunity to measure virtually impossible.

21 MS. STINSON: Other comments in this area? Ed and then we'll -- I'm sorry, Ray, we

22 missed you a while back.

23 MR. RAY TURNER: Ray Turner, David Joseph Company. A very important and valid

24 point, in helping you understand a little bit about how the detectors at the steel mill work -- not just steel

25 mills, but whatever the recycling facility it may be, they are constantly reevaluating and measuring

background. And I've asked the question numerous times, what is background.

In a San Francisco meeting, I had a discussion -- off the record discussion with Andy

1 Wallo, and he's telling me some of the material that's being remelted could essentially come in as much as
2 two-and-a-half times below background. Now, here's what can happen. You picture a scenario of rail car
3 or a truckload of material, where the front half is loaded with normal everyday scrap or materials that's
4 recycled everyday, and the back half of that shipment is loaded with material that's been cleaned up to
5 two-and-a-half times below background, that now becomes your new background and it will cause the
6 detectors to allow only good material, the everyday recycle material.
7 MS. STINSON: Thank you. Ed, and back to Norma.
8 MR. REITLER: Ed Reitler from Westinghouse. I think it's important to realize that as
9 health physicists, we're not asked to go out and measure a truckload of scrap. We can't do it, particularly
10 in the uranium fuel fabrication plant. What we're asked to do is clear materials much further upstream
11 than that. For example, I quoted Reg. Guide 1.86 a few minutes ago, "the requirements of 1.86 are you will
12 survey equipment such that all areas of that equipment are accessible for survey." We survey it, from a
13 contamination turn point, in terms of disintegrations per year, per hundred square centimeters. And we
14 release that specific piece of equipment based on that criteria.
15 We're not asked to go out and measure bulk quantities of material. And I would trust
16 that other facilities work the same way, even the reactor facilities. They survey individual pieces of
17 equipment pre-release. Then, it goes into a larger pile.
18 Speaking for the uranium industry, I've gone through 1640, made the calculations. And
19 at one millirem per year, based on 1640, we can measure at the micro level, at the specific steel we're asked
20 to survey. We can survey and pre-release that material to verify that based on the scenarios of 1640, the
21 critical does groups and population, based on the uses of that steel, concrete, copper, whatever, that we will
22 be below one millirem per year.
23 MS. STINSON: Thank you. Norma, pick a microphone.
24 MS. ROGERS: Norma Rogers, Allied Signal. I've got three things. I had to write them
25 down; I couldn't remember them all. Number one, what about natural uranium? And I agree with the
steel people, you know, you can have natural contamination that would go through and their detectors would
never see it.

1 Number two is the cost effectiveness of replacing all these instruments. In my particular
2 business, if I've go to buy $100,000 instrument, then I'm going to have to cut steel up into little bitty
3 pieces to slide underneath it, forget it; I'm going to dispose of it. And the question to the NRC is: are
4 you going to take the case-by-case scenarios of the past, that are already out there on various materials that
5 are being released today, and look at those circumstances, to determine these types of doses that you're going
6 to maybe apply to this ruling?
7 MS. STINSON: Trish, you want to address that last question?
8 MS. HOLAHAN: Let me start. Trish Holahan, NRC. I think as part of this overall
9 effort, I think we can say that we will look at what we are doing now and you'll hear more when Tony gets
10 into the case-by-case, that much of this is done through licensing and so, a decision is made. But, all the
11 technical information that we do have, we would look at as part of the overall effort.
12 Tony, would you like to expand on that?
13 MR. HUFFERT: Tony Huffert, NRC. The question came up, are we going to be looking
14 at past practices when we develop new criteria. I can't really speak to Nu Reg. 1640. That's Bob Mack
15 and he'll be dealing with that tomorrow.
16 We talked about soils earlier today and the effort that NRC has underway to look at
17 soils. Currently what we're doing is we're doing a fairly extensive review of the literature, to see how soils
18 are used. Now, this might sound a little bit silly, we all know that soil is all around us, but the concern
19 we have is how can people get in contact with it, if it were free released from a facility at a one millirem
20 or ten millirem or .1 millirem level. We were looking at past practices that have occurred on NRC
21 licensed facilities. And we're, also doing a very extensive literature search with the Natural -- I'm sorry,
22 the U.S.D.A.. Their soil library is the largest in the world. We're taking a look at scenarios that they will
23 come up outside the nuclear industry, to see if might be affordable to us. So, that's the kind of research
24 we're doing right now, for just one material that's not in Nu Reg. 1640.
25 Does that answer your question of what you're looking at?
MS. STINSON: Okay. Anything else on this issue? I do want to make sure we get a
little time to talk about international standards, consistency, and that whole array of issues. Mike?

1 MR. MATEO: The question is: are there studies or will there be studies that looks at,
2 let's say the hypothetical one millirem release; that not just looks at that material exposing individuals, but
3 looks at the material being melted or being fabricated, in such that there's accumulation. So that if you
4 were just going to keep it at the one millirem evenly distributed, if such could ever be achieved -- but what
5 happens if you take tons of the one millirem evenly distributed and you melt it, do you then create a base
6 metal that accumulates this material and then goes into consumer products that has a higher dose?
7 MS. STINSON: Do you want to address that, Tony?
8 MR. HUFFERT: Tony Huffert, NRC, again. The question can be broken up into two
9 pieces: is there going to be a buildup and, also, will people have multiple sources that they're going to be
10 exposed to. Does that -- is that what you're heading on?
11 The NRC is looking at both. We are working with some contractors to look at both of
12 these effects. Nu Reg. 1640 did not take that into account directly, but we're looking at it now.
13 MS. STINSON: Paul and then Gwen?
14 MR. GENOA: Paul Genoa with NEI, and a couple of comments related to this
15 detectability issue and the challenge of taking a dose based standards that allows you to compare apples and
16 apples across the whole horizon and then developing an implementation for that, which really basically is
17 concentration values for various radioisotopes, and they're not all gamut emitters. So, we have a whole
18 range of isotopes that need to be dealt with.
19 Fortunately, we have a lot of tools at our disposal. As was pointed out, there are
20 sensitive detection instruments. There are a ratioing technologies that can be used to determine what these
21 hard to detect are, and that has been routinely used. But, there becomes a range of implementation
22 problems and difficulties the more the numbers are lowered. The closer you get to -- the smaller subset of
23 natural background fluctuations you have the greater the problem you're going to have to deal with. So, I
24 empathize with comments that along with developing a standard, we have to recognize that there's an
25 implementation that needs to be done and needs to be practically implemented, in a way that the public can
understand and deal with.
That brings me to the second part of this, which is that linkage, which has been talked

about, is a pathway linkage. And the one specific issue you were concerned about, if you set a standard and these metals are released at this standard, could there be a concentrating factor. And the answer is, yes, it can concentrate in certain areas. So, you don't set the standard on the metal; you set the standard on the worse concentration situation, such as the bag house dust or the exposure to the driver, and you analyze it in the worse case. So, I think we're going to hear about that from Bob Mack tomorrow and how that's done. So, it is being considered. But, that's a very important point.

The real key I want to make out is that the assumptions that link the dose to the concentration are extremely important. We, as scientists and engineers, we tend to make back of the envelope bound in calculations, sometimes absurd in their conservatism. And if we're not careful, we can result in a standard that is not practically implemented.

Your point, an example, is if you took the 1640 values at 100 percent of the release criteria over an entire truckload, well, understand, that's how you would -- you would go through analysis. The truth is you could never release material at 100 percent of the activity over the entire surface area of the material and accumulate it into a truck and get it to your facility. There are practical limitations that would stop that from ever happening. So, it's important when we develop the assumptions, that we understand the linkage between those assumptions and reality and how much conservatism is built in. And that is a challenge.

MS. STINSON: One last -- okay, Gwen.

MS. BOWER: I didn't know if we were moving into the international aspect of this.

MS. STINSON: We are ready.

MS. BOWER: Following up on what was just said, if, in fact, we are going to be in the front of working with the IAEA in establishing criteria, then we, also, need to bear in mind that an organization like the IAEA has a responsibility to respond to all of its members state. And, in doing so, if there is a discussion as to whether we can actually have the capability to detect some of these levels, then what about some of the other countries that are member states of the International Atomic Energy Agency? And we have to give some consideration to the implementation of regulations in those countries, as well, and how that will come back and affect us.

1 MS. STINSON: Gwen, do you want to offer any of your insights, as to what some of the
2 issues -- the difficulties are going to be there with some of those other countries?
3 MS. BOWER: Well, I think, they're very much the same as they are here; but, you
4 know, cost effectiveness takes on a new meaning in Uganda. So, these are some -- they are very much the
5 same issues, but not nearly on the same scale as what we are dealing with here. The technology level is not
6 going to be the same. The cost effectiveness is going to mean something different to those folks.
7 MS. STINSON: Mike and then Bob.
8 MR. MATEA: If I could just follow up on the comment that I made a few moments ago,
9 because I think this might -- for those who have the potential or the possibility or the probability of
10 receiving this material, I think the issue goes not to what is the release value, because that will only make
11 sense if you're releasing a plate and structural that will ship to a construction site and be used as plate and
12 structural.
13 In the reality, when you issue material, let's say metal of any kind, if it can't be used in
14 the exact form that it's being released, it then has to go to a steel mill or a copper smelter or a aluminum
15 smelter, to change it into something that can be then reused. And before it gets there, it has to go to a
16 scrap recycler, who puts it in a form that the steel mill or the copper smelter can use. If that material then
17 is melted and there is accumulation of material in the rebar or in the rods or in the structural steel that
18 they put out, then that's going to change the scenarios. You may have put out one millirem, but what is
19 getting put out by the steel mill or the scrap -- or the aluminum or the copper smelter, that's the real issue,
20 when they take all this material and melt it and create it into a new usable product.
21 So, if we don't have the studies that says, you take one millirem contamination and you
22 melt 10 tons of it, what you're going to come out on the backside is x, then the release values, unless you're
23 just simply going to be releasing it for specific use, those type -- that type of information really is of no use
24 to private industry, because they don't want to know what you've given them; they want to know what's
25 going to -- what they're going to be giving the public. And if you're giving them one millirem, which you
consider is safe, hypothetically, but they're going to accumulate that one millirem in a melt and it's going to
come out as 10 millirem, because it's accumulative value for certain radioisotopes, the people who are

1 releasing it is off scott free and the steel mills and the recyclers and the copper smelters and the aluminum
2 smelters, they're the ones left holding the problem, which goes back to the whole concept of sealed sources.
3 You know, we're always the one left holding the bag and having to be contending with the cleanup and the
4 PR problems.
5 MS. STINSON: I think that's a clear description of your concern. Maybe some folks can
6 address it. Did you want to elaborate first?
7 MR. LEMASTRA: Yes. Bob, let me just --
8 MS. STINSON: Your affiliation, Tony, thank you.
9 MR. LEMASTRA: AISI. I'm not an expert on Nu Reg 1640, but I've looked at it.
10 What was done was to look at what an acceptable dose to the public might be and then looking at three
11 different metals, which were taken strictly to be examples of what might occur, plus crushed up concrete,
12 then looking at all the scenarios, if we take the metal, melt it, look at the bag, dust, how much ends up
13 there, how much ends up in the metal, how much of what might occur plus crushed up concrete. Then
14 looking at all the scenarios, if we take the metal, melt it, look at the bag house dust, how much ends up
15 there, how much ends up in the metal, how much ends up in the slag, and then take the metal, make it into
16 whatever, automobiles. Make it into -- I don't think anybody looked at it or at least didn't describe it, but
17 let's make plate and make a ship out of it and then have some sailor with a bunk next to it. Take the
18 dust. Look at all the different ways that the dust could be either used or disposed of. Take material, put it
19 into a municipal landfill. Take the slag, use is it in all different ways and then kind of see which one is
20 the worst case, then take that, go back and say how much radioactive material could be on the surface or
21 volumetrically involved and still not reach that level.
22 So in a sense -- I am not saying that real scientific studies were done, but in a sense that
23 is what that document attempted to do was answer your questions.
24 SPEAKER: And since Bob Mack is here and prepared to talk specifically about the
25 NRC intentions behind it and analysis behind it, we will let him build on that.
MR. MACK: Right. Thanks, Tony, for that.
Tomorrow morning we will go into a little bit more detail about that but yes, indeed, in

1 our analysis we were aware that some of the radioactivity could partition to the slag or the bag house dust
2 and so on.
3 We did take that into account in the analysis, and tomorrow I will have a little more
4 time to explain in detail what we from a regulatory approach do with that kind of information.
5 Now it may not qualify as a scientific study but I think it is high on the range of
6 technical analysis and the data that went into those analyses were gathered from sources in the industry itself
7 and those data are referenced and cited in the document, so hopefully the entire study -- it is the intention
8 of the entire report to be transparent. You know where it came -- all of the data came from.
9 Did I introduce myself? Bob Mack --
10 SPEAKER: Yes.
11 MR. MACK: Okay. I had an earlier comment. You had mentioned that you wanted to
12 talk about the international point and I think I can offer some specific things that the NRC is doing that
13 may stimulate some dialogue on that, if you would like that at this time.
14 SPEAKER: That would be good.
15 MR. MACK: For the last probably five years by now, four and a half or five years, we
16 have been coordinating closely with the EPA's technical analyses for dose assessment and their parallel
17 document to the NUREG-1640 is their TSD, Technical Support Document, that was published in 1997.
18 We continue to coordinate with the EPA on that, and so in addition to that, we have for
19 a number of years coordinated with the international community through the IAEA in terms of the
20 development of the tech doc that was referenced earlier, 855, and those levels, and we have as well as EPA
21 submitted our technical analysis to the IAEA, the International Atomic Energy Agency. We do attend
22 meetings with them and some of those meetings are joint meetings with key members from the European
23 Union.
24 It is a dynamic process. Europe hasn't settled on all of the clearance criteria, however the
25 European Union has issued Recommendation Number 89, which covers metals, and as Trish mentioned
earlier, the member states are obliged to pass legislation that would adopt those metal levels, those levels for
clearance for metals in May of 2000.

1 The point is why is the NRC interested in doing this. We have also been represented on
2 the ANSI N-1312 Working Group and voting, so stepping back from an NRC rule there is a recognition
3 that what the NRC does has impact on other entities within the country -- for example, state regulators, for
4 example the application of the ANSI standard, and another example the import or export from this country.
5 There is an interaction. The NRC is aware of it and it is a concern that, you know, the
6 Commission is going to have to deal with, so with that, what are some of your thoughts? The Commission
7 has limited authority over its licensees but yet we recognize that there is a broader ripple effect, if you will,
8 so I will just stop there.
9 SPEAKER: Thank you. Paul.
10 MR. GENOA: Yes. Paul Genoa, NEI.
11 This is related to the international efforts. I think it is extremely important. The
12 perspective I would like to give is the implementation of a clearance rule -- it goes on today. We all clear
13 materials every day and we use various criteria, and it is burdensome. That is why we think there should
14 be a change.
15 We think it is difficult the way it currently goes on, but we are a rich nation, right?
16 We have lots of resources. We can spend lots of money doing these things. But the whole world isn't that
17 way, and I am concerned that fundamentally what we are doing today I don't believe will be adopted in
18 depth by the rest of the world. I don't think they see -- I think they look at health issues as being very
19 important.
20 I think public perception is a luxury that we are sitting here talking about, how far
21 below a health effect are we really going to deal with to make it acceptable to the public, and I think that
22 is going to be a real challenge internationally because they are more interested in the practical
23 implementation of getting things done and so we have a luxury that we are dealing with here and I think
24 we have to keep in mind that other member states, international organizations are going to be trying to
25 deal in more practical terms with how to get this material cleared or controlled as is appropriate.
SPEAKER: Are there other perspectives, other thoughts on these issues?
Anything else anyone would like to raise related to the series of slides associated with

1 Presentation Number 2, Session 2? Anything else on dose?

2 We will spend some more time talking about NUREG-1640, understanding the

3 underpinnings of it.

4 Anything else? Maybe we are ready for our break, lunch break. Sarah, do we have a

5 sense of restaurants in the area? There is a Mexican food restaurant, Rio Bravo, right across the street. Of

6 course, they do have a restaurant here in the hotel.

7 SPEAKER: I think it is a lunch buffet here -- to my recollection --

8 SPEAKER: At the front desk you will find they have a list of restaurants in the area

9 and they do have a shuttle, but you probably want to refrain from going too far because we are going to

10 start promptly on our return. I think we are 1:30. Why don't we try to be back at 1:15 and make sure we

11 have plenty of time for all of the afternoon discussions. Thank you.

12 [Whereupon, at 11:50 a.m., the workshop was recessed, to reconvene at 1:30 p.m, this same

13 day.]

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1 A F T E R N O O N S E S S I O N

2 [1:30 p.m.]

3 MR. LESNIK: I am Mike Lesnik, with Meridian. I hope you had a nice lunch, got to
4 have a little sunshine out there. The afternoon in a room this dark, feel free to have the coffee or tea as
5 you see fit to keep yourself alert and motivated, okay?

6 We are going to move on to Session 3 this afternoon. If you take a look at your agenda
7 you will see we will tackle Session 3 about how the NRC currently controls solid materials in the current
8 program, and we will have two other sessions after that -- what are some alternatives for addressing control
9 of solid materials and how should solid materials be assured under various alternatives. That is our agenda
10 for the afternoon.

11 We will stay in the same kind of format -- a short presentation, overview by NRC Staff
12 and then we will have an hour and a half discussion, as we did before.

13 A reminder -- because of the taping we are going to continue to ask you to please give
14 your name and affiliation so that that gets on the transcript as we go ahead.

15 Tony and Steve -- Tony, can you introduce yourself and get us kicked off?

16 MR. HUFFERT: Sure. Tony Huffert. I am in the Division of Waste Management. I am
17 a Senior Health Physicist working with Bob Nelson on the technical basis.

18 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I work in the Office of Nuclear
19 Reactor Regulation. I am a health physicist. I have been working in the area of Material Control
20 Programs for about the past eight years and I am assisting the agency on this effort.

21 MR. HUFFERT: This session, Number 3, is how does NRC currently handle the control
22 of solid materials. For those of you who have been following it in the issues paper, it is Section Number
23 A.1.3, and the title of that is, "Current NRC Case by Case Review of Licensee Requests for the Release of
24 Solid Material."

25 As Trish pointed out in her discussions, the NRC does have regulations for the disposal of
solid materials containing relatively large amounts of radioactivity. The current NRC regulations do not
contain generally applicable dose criteria for the control of solid materials with relatively small amounts of

1 radioactivity that's either in or on the material and the equipment.

2 Even though the NRC does not have such criteria in place to cover the release of these

3 solid materials, it is likely that licensees will continue to seek release of solid materials with small amounts

4 of radioactivity when the solid material becomes obsolete or otherwise unusable during operations and when

5 their facility is being decommissioned.

6 The NRC does have regulations that require licensees to survey materials, to evaluate the

7 radiological hazard prior to the release. These are contained in Part 20.

8 One set of criteria that the licensees use to evaluate solid materials before they are

9 released is NRC Regulatory Guide 1.86, which we discussed earlier today. The title of that document is,

10 "Termination of Operating Licenses for Nuclear Reactors." We also have a similar guidance document that

11 is used by materials facilities called "Guidance for Decontamination of Facilities and Equipment Prior to

12 Release for Unrestricted Use or Termination of Byproduct Source or Special Nuclear Material Licenses."

13 Inhouse we call this Fuel Cycle 8323.

14 Both documents contain a table of surface contamination criteria and the table of surface

15 contamination criteria do not apply to volumetrically contaminated materials such as soil. They are only

16 applicable to surface contamination.

17 For some situations NRC allows releases of volumetrically contaminated solid material if

18 the survey does not detect radioactivity levels above background radiation levels. This is sometimes referred

19 to as our "no detectable" policy. This doesn't mean that material is released without any radioactivity

20 present. It simply means that the material was not detected with the instruments that were used.

21 We also evaluate specific requests for the release of solid materials on a case by case basis,

22 which is discussed further on the next slide.

23 First, I would like to talk about NRC Reg Guide 1.86, and Fuel Cycle 8323 in a little

24 more detail.

25 As Don pointed out in his opening remarks, this document is about 25 years old. It was

developed in 1974 by the Atomic Energy Commission and in 1982 we came out with Fuel Cycle 8323.

Both of these documents have the table of acceptable surface contamination levels. They were based

1 principally on the detection capability of readily available survey instruments that were being used by the
2 nuclear facilities 25 years ago.
3 Some of the limitations of this guidance are that it only contains numerical limits for the
4 amount of radioactivity that can be present on the surface of solid materials and therefore does not apply to
5 solid materials with volumetric contamination.
6 Also, the surface contamination levels were not based on the potential dose that an
7 individual may receive if they came in contact with released materials. Rather it was based principally on
8 the detection capability of survey instruments.
9 In addition, both of these documents were not established under a rulemaking process
10 conducted under the Administrative Procedures Act.
11 Another limitation that Trish pointed out in her talk was that although surveys do
12 provide some licensees with reasonable assurance that elevated levels of licensed material is not being
13 released from their control, not all licensees survey the material with the same detection sensitivity. This
14 can lead to differences in the amounts of licensed material that is released and on nonuniform levels of
15 protection.
16 One option that is available to licensees is to request approval of alternate disposal
17 procedures. Under this regulation licensees are allowed to seek NRC authorization for the disposal of the
18 materials with low levels of surficial or volumetric contamination. This is the NRC regulation 10 CFR
19 20.2002, which used to be 10 CFR 20.302. These requests typically involve the burial of solid materials
20 on the licensee's site or disposal at a nearby landfill. The licensees are required to identify and describe the
21 waste, the disposal site, the pathways of exposure, and the calculated doses to members of the public as well
22 as the workers.
23 The guidance that is used is that the annual dose is typically a small fraction of our
24 public dose limits, which are 100 millirem per year and if a facility, being a power reactor, is located in
25 an agreement state they would work with the agreement state on the approval.
So as you can see, the solid materials are being released in the absence of NRC
regulations in this area and it leads to the question how much material has been released so far.

1 As noted earlier, licensees are required by NRC regulations to perform a radiation survey
2 and keep records of the survey results. However, the survey records are not required to be submitted to the
3 NRC and therefore the NRC does not track the amount of solid materials released from all of its licensees,
4 which makes it difficult if not impossible to estimate how much material has been released to date.
5 We do not currently track these materials for several reasons. One reason is that NRC
6 inspects licensees' Radiation Protection Programs, which includes the review of survey records. Another
7 reason is that solid materials released that are made by the licensee are in compliance with the licensee's
8 programs and they are consistent with existing NRC regulations and the exposures that are associated with
9 the release of solid materials are estimated to be relatively low.
10 It can be said, though, that in general the amount of solid materials such as metal and
11 concrete that has been released to date is small compared to the amount that will be available in future
12 decommissioning.
13 Mike, if I could pose a couple questions for discussion. Talking about the current NRC
14 approach, is the existing case by case approach acceptable, and if it is not, how would you like to see it
15 improved or changed?
16 MR. LESNIK: Thanks, Tony.
17 SPEAKER: Thanks, Tony.
18 MR. LESNIK: We are going to focus on that for much of this time, but just in case, let's
19 just see if there are any clarifying questions you have got about the current approach. I suspect most people
20 in this room understand it, but just in case, Tony, let's just see if there are any questions about that before
21 we get on to opinions about what is working, what are some disadvantages of it. Mike?
22 MR. MATEA: Let's say hypothetically that nothing happens in terms of rulemaking but
23 the reality of the decommissioning effort that is out there exists.
24 What would occur?
25 MR. HUFFERT: It would depend on the dose level that is chosen. If we chose a very
high dose level, you would have a different amount of material and different survey procedures than you
might have right now if you had a very, very low dose level, something like .01 millirem per year above

1 background. As pointed out earlier, we might have to change the way we do business and how we do
2 surveys.
3 As a point of clarification, surveys means an assessment, not just physical monitoring using
4 a monitoring instrument. It could be a calculation. It could be information about process knowledge. We
5 might have to start incorporating more of that into our procedures.
6 MR. LESNIK: Tony, I think maybe the question is what if there is no rulemaking.
7 MR. HUFFERT: Oh, I'm sorry. What if there is no rulemaking?
8 SPEAKER: Yes.
9 MR. HUFFERT: We would probably continue our current case by case approach. We
10 would continue to use the values that were in our guidance. Reg Guide 1.86 may or may not be changed.
11 I don't know.
12 SPEAKER: Bob, did you want to add something here?
13 MR. MACK: This is Bob Mack. Sorry for interrupting.
14 There seems to be an echo that wasn't here this morning. It is difficult for me to hear. I
15 am not sure if we can adjust that or not.
16 SPEAKER: We'll see if the sound units will help on that.
17 All right. Let's stay with --
18 MR. KLEMENTOWICZ: Excuse me. I would like to just elaborate on Tony's answer.
19 This is Steve Klementowicz, NRC.
20 If there is no rulemaking, next March we have to report back to the Commission the
21 status of all of these meetings and comments, and the Commission will have to evaluate that.
22 If one of the options is to not do a rulemaking, we do have to spell out, as we already
23 have, this patchwork of policy and case by case developments, so the Commission would have to tell us
24 whether that is acceptable to continue to operate that way or if they want us to do something different, so if
25 there is no rulemaking we still need direction from the Commission about how to handle this existing
network of policies.
SPEAKER: That's a helpful clarification. Let's go over here to Terry and then Paul.

1 Don't forget to introduce yourself.

2 MR. SIVIK: Terry Sivik.

3 MR. MACK: This has gotten worse on the sound system.

4 [Discussion off the record.]

5 MR. SIVIK: Terry Sivik, AISI. I guess it's the follow-up on Mike's question and I

6 have a question.

7 I don't guess as a member of the public -- I am not really certain as to what the current

8 NRC procedures are. There are some indications that material is being released already and that we are

9 already getting this steel into the environment. Cranes are being released, motors, et cetera.

10 I thought from the last meeting that I was under the belief with respect to solid metals

11 and materials that they were being cleaned and disposed of, and not being free released into the

12 environment. Is that not -- could you just -- somebody provide me with some understanding of how the

13 NRC approaches these issues under 1.86 with the various materials that were being talked about here today?

14 MR. HUFFERT: Okay. I would like to separate the answer into two different

15 components. One is surficial contamination. If you have, let's say, this table which has Contamination on

16 the top of it, you would conduct a radiation survey using an appropriate instrument, using approved

17 procedures that are in your Radiation Safety Program and you would evaluate the amount of radioactivity

18 that is present.

19 You would then compare it to limits that are either in your license or that you have

20 adopted through just wholesale adoption of a Regulatory Guide, for example, and if they met the criteria, it

21 would be released.

22 In comparison to surficial contamination, if this table was solid and it was volumetrically

23 contaminated, Regulatory Guide 1.86 would not apply to that. You would go to other criteria that might

24 have been developed on a case-specific basis. I can give you an example of soil. Under 20.2002 a licensee

25 might come up with a proposal to dispose of this material either onsite or offsite. They would do a pathway

analysis. They would try to determine what kind of dose would be associated with this soil and they would

seek approval from the NRC or the agreement state to release it.

1 If it was approved, then the material would be released.

2 MR. KLEMENTOWICZ: And I would like to elaborate on that -- Steve Klementowicz.

3 For power reactors we have some regulatory guidance and an information notice issued in

4 1981 -- Information Notice 8107 -- and it talks about this issue of releasing material. It uses, it comes up

5 with a value of 5000 DPM per 100 centimeters squared. That is the practical survey value and so what

6 we have as an industry that has adopted that value, that was also considered to be, quote/

7 unquote, "no detectable" at the time, using the 1970s technology, so it all ties together with this 1.86 also

8 has a value of 5000 DPM per 100 centimeters squared.

9 It has pretty much evolved into a de facto release limit. We do not call it a release

10 limit at the NRC. We call it a detection standard -- how hard you have to look when you perform a

11 radiation survey, but the industry pretty much considers it a release limit.

12 So if someone is doing a survey for surficial -- can't say that -- surface contamination,

13 they would adjust their instruments to have a detection capability of 5000 DPM per 100 centimeters

14 squared. They would survey this material. If they did not detect any licensed material above that

15 sensitivity that would be free released.

16 Now the question you are posing, and the clarification, is if you used a more sensitive

17 instrument you would most likely see something and we have run into those situations where one licensee

18 releases some material, it goes to another licensee -- painting equipment, for example -- that has been

19 transferred from one nuclear power plant to another. When it went to this other power plant, they

20 performed a more detailed radiation survey on the incoming equipment.

21 They performed a more sensitive radiation survey on the incoming material --

22 SPEAKER: Can you turn the master volume down just a tad? Maybe that will help.

23 Press on, Steve.

24 MR. KLEMENTOWICZ: Okay. So when it went to this other facility that performed

25 the more sensitive survey, they detected licensed material. This resulted in a violation being issued to the

plant that released this painting equipment. So that is why when the Commission gave us the SRM last

year they specifically directed us not to look into a technology-based detection standard, because, as we have

1 said a few times today, that standard, depending on your sophistication and how much you want to spend on
2 instrumentation, can vary all over the place, so the bottom line answer is we have a detection standard.
3 People survey to that criteria, but there is radioactive material being released below that level.
4 MR. LESNIK: I think this is a helpful clarification because before we can get into
5 advantages, disadvantages of the current system to dive in a little bit for a deeper understanding of what it
6 is. Thanks, Terry, for doing that. Paul.
7 MR. ADAMS: Vince Adams, Department of Energy again.
8 MR. LESNIK: Or Vince.
9 MR. ADAMS: What does your 5000 DPM per 100 centimeter squared equate to in
10 terms of a dose rate, since we now are moving towards a dose-based standard?
11 MR. HUFFERT: I'll take a shot at it first. Historically, Steve mentioned IAEA
12 Circular 8107. That did an estimate based on 1981 information that was available that if you accumulated
13 a bunch of material that was at the 5000 DPM per 100 squared centimeters or less you would have less
14 than 5 millirem per year, and that is what the NRC said back in 1981.
15 Now we have updated that with NUREG-1640. NUREG-1640 has a much more
16 comprehensive assessment associated with it and, to answer your question, it depends on the radionuclide. It
17 can vary from less than 1 millirem to up to 15 or 16 millirem for 5000 DPM per 100 squared centimeters
18 based on the assumptions in draft NUREG-1640.
19 MR. LESNIK: Thanks. Paul.
20 MR. GENOA: Yes. Paul Genoa, NEI. I guess I wanted to get back to the original
21 question that Mike posed, which is if there was no standard mechanism in place today or if you decided not
22 to do it, and the status quo reigned, as we moved into the future what would that do to material flow.
23 The answer is that more material would be released over time, and that is because
24 fundamentally up to this point nuclear technology has moved to a certain point, facilities are in operation,
25 and some of those facilities over the next 20, 30, 40 years will decommission, so there is a certain amount
of material that is released from facilities every day during their operation but there is a larger volume of
material that make up the facilities themselves.

1 Some of that material will stay onsite in decommissioning and is covered under a
2 decommissioning rule, which is a 25 millirem standard, and that is probably based a lot on the fact that it
3 is a fixed facility in one location, but much material will be release from those facilities.
4 If there is a comprehensive standard that makes sense, then technology will be developed
5 as it currently exists by a variety of processes around the country to take those materials and where it is
6 cost effective and prudent, to decontaminate that material, to concentrate the activity from that, and put it
7 into safe isolation and disposal, releasing the rest of the material as clean.
8 That benefits us in many ways. That is what will happen under the current situation.
9 MR. LESNIK: Do you have another clarifying question, Mike, before we move on to
10 your sense of how the system is functioning?
11 MR. MATEA: Maybe just one more follow-up.
12 Given the material --
13 MR. LESNIK: Introduce yourself again, Mike -- I'm sorry.
14 MR. MATEA: Mike Matea from ISRI. Given the material that is there now or
15 projected to be there for decommissioning, let's take one additional hypothetical, that you, meaning the NRC,
16 establishes a release criteria, but attached to that release criteria is that the material cannot be released for
17 general use, meaning it must be released to specific uses only. What does that do to the flow and to the
18 material that is there now?
19 MR. GENOA: Paul Genoa, NEI.
20 It adds some complexity but we have dealt with many complex things. Currently the way
21 a situation works is at a nuclear facility, a larger facility, you will have a variety of activities going on.
22 Some are nuclear activities, some are not. You will have recycled bins just like you have in other facilities.
23 We recycle paper, we recycle metal, steel, aluminum -- you name it -- there are bins out there. All of
24 that is radiologically clean.
25 But some material that is free released from the facility is also considered radiologically
clean and currently is just added to the existing bins, and that is how it gets out into the recycling
environment.

1 If there was an absolute moratorium on any material coming out of a nuclear facilities to
2 keep it from getting into the recycled environment, that is possible, particularly if it is for the material
3 fixed within the facility, but it would be a challenge and it would be a burden, and it is not clear what the
4 health implications are, but it could be done.
5 The difficult part, because quite frankly, as you point out, the recycle value of the iron,
6 the carbon steel, is not great compared to what is in the country, but the more difficult thing is how do you
7 deal with this gentleman's crane that gets released? We are not worried about the scrap value of the crane.
8 We are worried about its use and reuse as a viable tool and a piece of equipment. Most likely it is clean.
9 There may be a place somewhere, perhaps inaccessible, where there is some small, trivial amount of activity
10 that you have to deal with.
11 A rational criteria would allow that to be reused into the public. The question is how
12 do you prevent the subsequent recycling of the metal from that crane?
13 I think you could logically infer that if a reasonable criteria was set initially to control
14 its release safely that some hypothetical secondary recycling would probably not pose a risk, but I think that
15 is the answer to the question that you have asked.
16 MR. MATEA: Mike Matea from ISRI. One more quick follow-up. Right now
17 something is released under the criteria of Reg Guide 1.86. Does the entity releasing it have to make any
18 notification other than to the NRC?
19 MR. KLEMENTOWICZ: Steve Klementowicz. The answer is no.
20 MR. MATEA: And to go into this "no detectable" policy a little more, and regarding
21 the surveys and records, the surveys -- the regulations require surveys of radioactive material, areas, rooms,
22 for the radiological hazards, to evaluate the hazards to workers and the general public.
23 It is a bit of an unusual situation when you perform a radiation survey of a piece of
24 equipment to be removed from the facility. You are required to verify that in the power reactor case there
25 is no detectable licensed material. You perform the survey. You do not detect any licensed material.
Therefore the material has no radiological hazard and therefore a record, a specific record on that piece of
equipment, is not required because there is no hazard. There is no licensed material.

1 Now when Tony explained about the records and the surveys and the programs, that is
2 what we inspect to. We look to see that the licensee has procedures, trained technicians, equipment to
3 monitor all of this material that flows in and out of the power plants, and the records are usually a log
4 book that a qualified technician was on duty and that he surveyed and released, you know, five workman's
5 buckets of hand-held tools, flashlights, pipe, things like that, but I don't want anyone to be confused here.
6 There is no individual piece of paper that says I released a torque wrench, serial number 123. It will be a
7 general log.
8 MR. LESNIK: I want to take a few more comments here. We are starting to get Mike
9 and Paul, I think almost towards Session 5 discussion about looking at some of these approaches, but I
10 think this is helpful to frame this up.
11 Let's take a few more, just on clarifying the current case by case and then let's dive in,
12 talking about pros and challenges of case by case, okay?
13 Let's go to Bob Nelson.
14 MR. NELSON: I just want to emphasize it is very important that everyone understand
15 what the current practice is because anything we do in this rulemaking would change from current practice,
16 or maintain it, so it is very important you understand what the current practice is.
17 This practice isn't just limited to large nuclear facilities like power plants or fuel cycle
18 facilities. The practice also applies across the NRC's licensing base to use material in an unsealed form.
19 This could be at a doctor's office, it could be at a pharmaceutical research laboratory, it could be any one of
20 a number of different users of radioactive material.
21 Typically when we think about releasing materials, we think about these larger volumes of
22 larger licensees, but the practice extends across it, so any change from current practice or even maintaining
23 the current practice, is not only affecting the hundred or so larger licensees to use material. We are also
24 talking about thousands more smaller facilities, so you have to look at these types of things as well.
25 What do you do with the chair in the research lab? So that is the level that whatever
criteria is going to be applied, because it has to be uniform, so thing about that and understand that we are
talking about a much larger scope of licensees than you may be thinking about in the current discussion.

1 MR. LESNIK: That is a helpful clarification, a think a reminder for the group. Norma?
2 MS. ROGERS: Norma Rogers, Allied Signal.
3 I have two questions again. In considering this rule changing or this -- what you are
4 here for today. The case by case that is currently done, if you change and you come out with this ruling on
5 these criteria, will that eliminate a case by case situation? That is question one.
6 Question two is we have heard a lot of things about changes in the NRC that's expected
7 in the future concerning inspectors. A lot of what you deal with on a case by case basis now the inspectors
8 do inspect that according to the licensee's license, et cetera. If there is no ruling and there are less
9 inspectors, will the Commission change the case by case regardless?
10 MR. LESNIK: So two pieces, right? One is does it mean you are de facto leaving case
11 by case potentially, or can that be part of something and then the implication of what you are hearing at
12 least about inspectors related to that.
13 MR. HUFFERT: I think as Steve pointed out earlier, all the options are open right now.
14 I think the issues paper also states that. We are taking a look at other alternatives and as far as
15 maintaining the case by case, we are going to go back to the Commission and we don't know exactly what
16 they would tell us. If they say continue with the case by case basis, would they still want to have Reg
17 Guide 1.86 updated? I don't know.
18 What role does the new ANSI standard that is going to be coming out in a couple
19 months, how will that affect the way we are doing business? I don't know.
20 One of the reasons why we are here today is to figure out what you would like to see
21 changed in the case by case basis. Is it broken? Does it need to be fixed? So we are looking for your
22 input.
23 As far as the NRC inspectors, I can't speak to that -- that is a policy question that I
24 would offer to somebody else of the NRC Staff.
25 SPEAKER: Can you restate the question again?
MR. KLEMENTOWICZ: I can address it for power reactors. Steve Klementowicz, NRC.
For power reactors, as part of our new Reactor Oversight Program you may have heard

1 about. We are somewhat risk-informing the inspection program.

2 I wrote the new baseline procedure -- well, not alone, but part of that procedure for the

3 inspector does address looking at the Material Release Program, and that is what we call the "baseline" so

4 that will be performed by whatever inspector does go to the site or the Resident Inspector, so that particular

5 component is not disappearing. There may be less inspectors or less inspections but whenever they do go

6 look, they will look at that because it is one of the minimum requirements.

7 MR. LESNIK: Let me suggests, folks, that we move on here. Let's start talking about

8 and evaluating, if you will, or at least get your sense of the current case by case approach.

9 First, let's spend a little bit of time on attributes, positive things you see about the case

10 by case approach -- it's helpful for the NRC to hear from you on that first. We are going to hold off on

11 problems or challenges, so first, any attributes, positive dynamics you see with the case by case? Norma?

12 MS. ROGERS: Norma Rogers, Allied Signal. One is we do essentially recycling of

13 synthetic calcium fluoride in our facility, which is produced down the line in our process. There is a slight

14 contamination potential there with the calcium fluoride that is then used to make hydrofluoric acid. So that

15 is a very positive thing -- it is taking material that could be going to a landfill, that is keeping it out of

16 the landfill and there's -- the dose of it -- it has been determined by the NRC that this is acceptable.

17 I think that it is a wonderful practice.

18 MR. LESNIK: How about not just the end result of some of the case by case approach

19 but the process itself and how it is functioning. It would be useful to hear. Art?

20 MR. PALMER: Art Palmer, ATG.

21 About two and a half years ago I submitted a

22 D-in-D plan for a research facility, and one of the items that was contained in there was a volumetric

23 release request at 90 picocuries per gram for tritium, and that took over two years to get through the

24 Headquarters and Region IV review process. It was only 35 pages thick.

25 But bottom line was the only way we could get it approved was to pull the 90 picocurie

per gram number out of that D-in-D plan. After that was pulled, then it was approved at surface

contamination limits of 200,000 and 600,000, average and maximum, so all I can tell you is having

1 been through that process, case by case through NRC is a torturous path.

2 Second comment I would offer right now is that Reg Guide 1.86 and FC-83 --

3 MR. LESNIK: That's a positive comment?

4 [Laughter.]

5 MR PALMER: No, the positive one is coming. We are kind of doing a job on Reg

6 Guide 1.86. Everybody is holding their nose, going ooh, that stinks. Hey, it's been very robust for 25 years.

7 I have lived through the new Part 20 change and I haven't seen the incremental benefit from the Part 20

8 revision yet and unfortunately I think I am going to live through this free release standard, at least I hope

9 I will anyway, but I am afraid when I get to the back end 1.86 is going to be gone and we are going to

10 have something else that doesn't work quite as robustly as 1.86 does.

11 Straight up -- there have been no health effects from 1.86, okay? There are no -- I mean

12 to be callous, there are no bodies that have resulted from this practice. It has been protective of public

13 health and safety, and it is a commonly understood basis that you can go from region to region and people

14 pretty well understand, so it is pretty well standardized, and I think those are some very positive aspects and

15 attributes that we are in danger of losing or at least not appreciating under the present regimen.

16 MR. LESNIK: Thanks, Art. Jim or Tom, did you guys have any comments about this,

17 the attributes of the current case by case?

18 MR. KLEMENTOWICZ: I just wanted to comment --

19 MR. LESNIK: Go ahead, Steve.

20 MR. KLEMENTOWICZ: -- regarding Reg Guide 1.86, I think the Commission, if the

21 Commission though that the values in Reg Guide 1.86 were detrimental to the public's health and safety, it

22 would have been pulled ages ago, so what we are exploring here is that is a contamination criteria and the

23 new wave is a dose-based criteria, but we hear your concern in your comments.

24 MR. LESNIK: Let's take a few more comments on attributes of case by case, then we will

25 move on to challenges or problems. Mike, you have got a positive comment about case by case?

MR. MATEA: I wish. But a question, to make sure I understand. Under 1.86, and please correct me if I'm wrong, if it meets 1.86 it is releasable, but if it is above 1.86, you must make a

1 case to the NRC as to why it should be released or how it can be released. What if something is not at
2 1.86. We were talking about case by case. I am not sure I understand that. Tony or Steve?
3 MR. HUFFERT: I will give it a shot for materials facilities, and Steve, if you want to
4 pick up for reactors.
5 1.86 has been -- the criteria in Reg Guide 1.86 have been incorporated into materials
6 licenses for some cases. Sometimes they will use alternatives to Reg Guide 1.86. The NRC Staff might have
7 put in something lower or they could have put something higher than Reg Guide 1.86 in their license, so as
8 far as it being releasable it depends on what is in the license and what is part of the Rad Safety Program.
9 If they want to come in for something different, NRC licensees are allowed to do that
10 anytime as far as I know for an exemption or for a change from the standard practice.
11 We would evaluate on a case by case basis and determine whether or not it is acceptable.
12 MR. LESNIK: Steve, did you want to tackle this also? -- not at 1.86. We were talking
13 about case-by-case, I am not sure I understand that.
14 MR. CAMERON: Tony or Steve.
15 MR. HUFFERT: I will give it a shot from Materials Facilities, and, Steve, if you want
16 to pick up for Reactors. 1.86 has been -- those criteria in Reg. Guide 1.86 have been incorporated into
17 materials licenses for some cases. Sometimes they will use alternatives to Reg. Guide 1.86. The NRC staff
18 might have put in something lower, or they could have put something higher than Reg. Guide 1.86 in their
19 license. So as far as it being releasable it depends on what is in the license and what is part of the rad
20 safety program.
21 If they want to come in for something different, NRC or licenses are allowed to do that
22 anytime as far as I know, for an exemption or for a change from the standard practice. We would evaluate
23 it on a case-by-case basis and determine whether or not it is acceptable.
24 MR. CAMERON: Steve, did you want to tackle this also?
25 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. For power reactors we have a
sightly different twist. Power reactors do not have Reg. Guide 1.86 values in their license, that is where we
have the no detectable standard. Now, it turns out the no detectable standard is consistent with Reg. Guide

1 1.86, the 5,000 dpm per hundred centimeter squared value. So we hold to the no detectable. So if a
2 licensee uses a very sensitive survey piece of equipment, they should be able to see below that value. So if
3 they see license material, they can not free release it. They would have to petition the NRC under this
4 case-by-case to dispose of it somehow. So that is -- it is consistent with NMSS.
5 MR. CAMERON: Paul, I am going to get Tom in here. We haven't heard from in a
6 bit and he is from one of the agreement states, an inner post state, I might add.
7 MR. HILL: Thank you. Tom Hill with the Department of Natural Resources,
8 Radioactive Materials Program. We have used, had licensees use Reg. Guide 1.86. And to answer the
9 question, if it is contaminated greater than 1.86, it is either decontaminated so that it is less than that
10 before it is released, or it goes to a low level waste disposal. And that is the way that we used it
11 previously.
12 And I guess, you know, on a positive one, as I said, it has worked, the system has worked.
13 And I am thankful that we don't have to address that very frequently.
14 MR. CAMERON: Paul, you have been waiting for a while, and then we will come down
15 here to Val. Let's take a few more, any kind of positive comments you want to make about the current
16 case-by-case. Then let's move on to particular challenges. All right. So let's stay on this topic, Paul.
17 MR. GENOA: Right. Paul Genoa, NEI, on that topic. In fact, that is how material
18 would work. Material would be released from a facility, you would compare it against your criteria for
19 reactor, it is no detectable. For another facility, it might be a license condition. It is above that, your
20 choice is do something to it to make it below that. Dispose of it as waste or some other licensed disposition
21 pathway. Or go ahead and apply for an alternate disposal request which allows you to make a case that if
22 I took this particular material, with these radiological attributes, and dispositioned it in this way, burial
23 onsite, burial offsite, that the health consequences are minimal, and I am asking authority to do that.
24 The regulatory agency, the NRC or the agreement state would then review that and say
25 yea or nay. And they have to use some criteria to do that. And so that is how it works.
How does it work? If I find material that is significantly radioactive at one of our
facilities, and I cannot decontaminate it easily, it goes for disposal, there is no question, or it is reused

1 within the facility or whatever. If it is a nuisance material, if it is perhaps the gravel on top of the roof
2 of an auxiliary building that has trace contamination at environment levels, the same cesium levels you
3 would find out in the backyard of your house, I can't say that that cesium is different from the cesium from
4 my facility, so I am in a jam. What do I do? I recognize that it doesn't make sense to send several
5 truckloads of this material across country for disposal. I might go to my regulator and ask for approval to
6 deal with that.
7 When I worked for Florida Power Corporation in Florida, I asked the regulators for an
8 alternate disposal request under what was then 302 -- 20.302, now it is 20.2002.
9 The point I am getting to is, first, it is an onerous process. It is difficult. It is a good
10 idea, I think it should be kept, but it is not an easy thing. It can't be done every day for every type of
11 material. It takes resources on the licensee. We had to go first to the state, lay out our proposal. We had
12 to go ask for confirmatory analysis by not only the state health department, but by the university, to have
13 independent laboratory analysis.
14 We had to talk to the regulator. The regulator reminded us that we are an agreement
15 state, and it is up to the agreement state to deal with this. The agreement state didn't want to do it on its
16 own initially, had to think about it and evaluate it. Ultimately, they did the right thing. But they feel
17 like, well, geez, it would be a lot easier to do the right thing if we had a national standard that we can
18 compare our analysis to.
19 And so I guess that is my picture of --
20 SPEAKER: Your segue to the problems, problem component of this.
21 MR. GENOA: No, no, there is not a problem component. The problem component is,
22 yeah, we need a consistent standard. My point would be, alternate disposal requests, if you really think
23 about it, or these site-specific allowances that some of these licensees have pointed out, really should be
24 thought of as a restricted release scenario because they are very specific and they have certain end
25 applications in mind. And I those are worth considering and they should be saved, and that should be
future opportunities, because once you decide that it is above a criteria, that doesn't automatically mean it
needs to go to a Barnwell like facility. There may be a whole variety of tiered approaches to controlling

1 that material safely.

2 But that is not today's discussion. Today's discussion is the criteria itself.

3 SPEAKER: That is helpful, that is helpful background on your perspective on that, Paul.

4 Thanks.

5 MR. CAMERON: Val.

6 MR. LOISEL: Val, Armor. Well said, Paul. You took my thunder. I did want to say

7 this about the processor companies, though. If you are dealing with surface contamination and you clean it

8 to Reg. Guide 1.86, and you do your whole thing, that is great. Generally, people, the processors, do not

9 take recourse to the petitioning process that is described for the case-by-case scenario. But they might do

10 that, consistent with their licenses, if they thought there was some sort of equivalency, you know, that it is

11 no worse than Reg. Guide 1.86 or new criteria, as people are beginning to think about them today in the

12 health effects arena. But that would be the only case, that people are not out there trying to exceed Reg.

13 Guide 1.86 in general.

14 And, Paul, you also reminded me about the -- failing of the possibilities for disposal

15 pathways. One of the key pathways we still have at our disposal is restricted reuse. And a perfect example

16 of that is the melt cast or the shield blocks that GTS Durotech does. So that in your basket of options of

17 things to do, that is one of them.

18 MR. CAMERON: Alan, do you have something on this?

19 MR. CURE: No.

20 MR. CAMERON: All right. Let's move on. All right. So we have talked about the

21 case-by-case approach, we have had some good conversation clarifying it, some good conversation about what

22 are some positive components. How about problems, challenges with the current case-by-case approach?

23 Things either you have run into, that you foresee in the future. Yeah.

24 MR. LEMASTRA: Tony Lemastra, AISI. I have heard non-detectable used in a way

25 that gives me an impression that it is not the way I typically use it. To me, if I say something is

non-detectable, it means that I can't measure anything above background. I thought I heard it used in a

way that says you have a level, in this 5,000 dpm per hundred square centimeter. Non-detectable, the

1 impression I got was that non-detectable meant it didn't exceed that number. Can somebody clarify this for
2 me?
3 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. You heard correctly. The NRC
4 guidance that has been published established how hard you have to look. That establishes the no detectable
5 standard. For surface contamination, the how you hard to look is the 5,000 number. That is published in
6 that circular 8107. For volumetric material, we have a policy that it is the environment, it is what is
7 called the environmental LLD, lower level of detection, lower limit of detection. That is consistent with the
8 power reactors' technical specifications to perform an environmental monitoring survey program.
9 So back in the '80s the Commission came up with this policy, or rather the staff did, that
10 said this is how hard you have to look for something to be no detectable. If you look this hard and you do
11 not see any license radioactive material, then it is not detectable and can be free released.
12 So the two components, it is not detectable, but the NRC has established that threshold of
13 how hard you have to look.
14 MR. CAMERON: Tony, did you want to follow up on that then?
15 MR. LEMASTRA: Yeah, I would like to. Tony Lemastra again. That kind of presents
16 the problem of whether we are looking at 1.86 or we are looking at NUREG-1640, is that what you are
17 calling non-detectable, again, for some of the gamma emitters, in a reasonable mass, let's say a couple of tons
18 in a vehicle, will or could be detectable. And, you know, I think some of the comments that I heard from
19 some of the people in the steel industry are that stuff is being released that is non-detectable. The way they
20 were thinking of non-detectable was you put a survey meter on it, you don't measure anything, not that it is
21 not above 5,000 dpm per hundred square centimeters. So there is, you know, a problem in understanding
22 the terminology that is being used.
23 MR. KLEMENTOWICZ: Steve Klementowicz. That's correct. And that is why we are
24 trying to eliminate all of these inconsistencies and to have a standard that says no detectable based on
25 1970s technology. And we need to update this to eliminate all this confusion and inconsistencies. Because
I agree, if someone hears me say no detectable, you have to know the other part of that. Well, at what
threshold do you look to, what threshold do you set the sensitivity of your instruments? And that has

1 caused a lot of problems, as I explained.

2 One licensee released something under their program, another licensee surveyed it and did

3 a better job, did a more sensitive survey, and there was a violation to the first licensee, whereas that

4 program was found acceptable.

5 So this is the type of inconsistency that we are trying to eliminate by coming up with a

6 national standard. Whatever the value, we want everyone to be on the same level playing field, so we don't

7 say no detectable, we say here is the limit.

8 MR. CAMERON: Bill, do you have a comment here on kind of challenges, problems

9 with the current case-by-case?

10 MR. RANES: Yeah, Bill Ranes with TVA. Just to follow up, and I think that is

11 exactly the value of what we are talking about in this standard, is that it gives us a standard, not some

12 term of "non-detectable" or that you, you know, that you can't see it. It clarifies the issue. We are talking

13 about a risk-based standard and that is the value to what we are talking about here, is it gives us a value

14 to say this is the limit.

15 MR. CAMERON: Bob.

16 MR. NELSON: Bob Nelson, NRC. I will use an example maybe to show the benefits

17 and the problems with the current approach and maybe that will fuel some discussion. But take a licensee

18 who has a contaminated building, say it is concrete, steel structure, and a roof, obviously, poured concrete

19 floor. Reg. Guide 1.86 works well for a lot of those surfaces, unless we have a volumetric contamination

20 problem.

21 In the case of a concrete floor, you can scabble till you get, you know, down to 1.86

22 levels. But let's say we have the roof is some kind of composite material, has insulation in it, tar, shingles,

23 and that somehow got volumetrically contaminated. They want to know what they can do with this roof.

24 We have no volumetric release criteria. So a licensee will come in and say, it has got X number of

25 picocuries per gram of this radionuclide. Can I release it? And then we have to do some case-by-case

analysis.

The first problem that we might have is, what dose standard do we apply, since we don't

1 have one? What scenarios do we use to do the dose assessment? Again, we don't have guidance or firm
2 guidance on that. And what is the critical group? All the types of things you would do in a site-specific
3 dose assessment, that is not addressed.
4 If it is within the bounds of 1.86, we have got something, we can make a decision. 1.86
5 may not be perfect, but it is useable, we have used it, it works. But when we get beyond that, we get
6 beyond that guidance in the volumetric contamination or to places where 1.86 might not be applicable, we
7 have -- we get into this case-by-case question. I have heard a lot of questions about what is case-by-case,
8 well, here is an example of the case-by-case and it happens a lot.
9 The licensee has the right to come in and say we think this material is clean, it is clean
10 enough. NRC, can we release this? And we have to make a decision. So we have to go through this
11 process every time. We have to look at and answer all these questions on a case-by-case basis. Are all
12 these cases consistent in their approach? That is a problem. Do we apply a consistent dose standard? Do
13 we have a consistent decision methodology?
14 From my perspective, those are the kinds of limitations that we have in the case-by-case.
15 From licensees' perspective, if we are doing that analysis, they have to pay for it, it takes time, delays
16 decommissioning. It just creates a lot of uncertainty.
17 MR. CAMERON: Thanks, Bob. Maybe kind of building on that, just pose a question.
18 You talked about 1.86 and how it works and what else. What do you foresee -- I mean this is a question
19 for some of you in particular, as the rule proceeds, an increase in decommissionings and the kind of volumes
20 of material coming out, 1.86 still works, satisfactory approach? Some of you have started some of those
21 activities. If you were to look ahead, what is your view on that? Paul.
22 MR. GENOA: Well, to answer your specific question, you said, if we were to move
23 ahead, in current terms, you know, how will that affect things? And I guess I was trying to make the point
24 that, you know, we are set. Industry is established in this country to move forward, and part of moving
25 forward means decommissioning some of the original facilities. So whether we have a Reg. Guide 1.86
criteria, or a more consistent uniform national standard, you know, we are going to have make more of these
decisions as more material comes out. So it is going to happen either way.

1 I believe Bob pointed out some very critical reasons why one approach may be much less
2 efficient than another approach, and I think that is the reason for the rulemaking.
3 But to give you an idea, I mean we keep trying to go back to the idea -- first of all, you
4 don't even know that the material we are talking about has any -- I like your term, "radiological history"
5 associated with it, I mean any license material from the existing facility.
6 So the first challenge is even determining whether it does or does. That is where we want
7 to be. We want to understand that there is rule that lets us make that initial determination. Once we
8 know there is radioactive material associated, at least above some consensus standard, then there are options
9 to take care of it. But just determining whether or not there is radioactive material is a big problem, it is
10 not an easy thing in all cases.
11 You mentioned for decommissioning, Mike, under Reg. Guide 1.86, at the Fort St. Vrain
12 reactor, they spent over $20 million just in the final survey, to prove that the radioactive content was below
13 the level. $20 million is not an insignificant amount of money for a facility that has already been cleaned
14 up. No change happened before or after that final survey, that was just to prove it was okay -- 20 million
15 bucks. So there are significant consequences there.
16 We do, though, in license termination space, now have a dose-based rule that now
17 establishes criteria. Does it put a challenge or a burden on the licensee to prove that they meet the
18 criteria? You bet. Do we need firm guidance on how to do that? You bet. But we are working our way
19 through that. At least we have a goal and a structure to do that. I expect the same thing to happen in
20 release of materials, and I think that we are headed in the right direction. But I think it is needed.
21 MR. CAMERON: Anything else? Those of you that -- have you heard, have you said
22 what you needed to say, either about the current case-by-case approach and positive aspects, or problems you
23 have experienced, or you see or foresee? Who have we got? Mr. Turner.
24 MR. RAY TURNER: The good looking one.
25 MR. CAMERON: Which one are you?
MR. RAY TURNER: The good looking one. Ray Turner, David Joseph Company.
This is kind of a bad news/good news, I guess it is positive. I was called to a steel mill in West Texas

1 who had a contaminating event. They had melted a cesium source. And they had changed out all the bags,
2 had scraped down and cleaned the bag house, had changed the refractor in the furnaces. Everything was
3 essentially pristine and new. But yet five months after the meltdown, they still had cesium or traces of
4 cesium in the bag house dust.
5 The state EPA had, I guess, done some scientific studies or whatever and determined that
6 there was -- I am talking about tracer levels, the highest amount measured of cesium in the bag house dust
7 was 1.68 picocuries per gram, in one sample. All the rest of the samples .3, .4 picocuries per gram.
8 However, the state had told the mill they were going to shut them down within two weeks, close the doors of
9 the facility, unless they could solve the problem of the cesium in the bag house dust.
10 And when they called me to come down to the mill, that is when we were able to
11 determine that the cesium in the bag house dust was coming from normally occurring cesium in the
12 background, not naturally occurring, but normally occurring cesium in the background.
13 Subsequently, I had meetings with the State of Texas and then went to the NRC, the
14 DOE, EPA, several meetings in Washington. We were able to establish a normally acceptable level, or
15 clean-up standard, at that time for 2 picocuries per gram of cesium in the bag house dust, which allowed
16 that steel mill and, subsequently, probably seven or eight more to continue to be able to operate, because the
17 bag house dust is characteristically a hazard to begin with. So now we had a mixed waste and there was no
18 standard set. In addition to that, then the Reg. Guide 1.86 was the clean-up standard used inside the bag
19 house on the rest of the material, which allowed those mills to start back up and go back into production.
20 MR. CAMERON: Thanks. Randy. And then I would ask NRC staff to think, is there
21 anything else around this topic you would like to either pose for people or issues you would like to see
22 discussed? Otherwise, we might move on to break. But let's see what comments we have got here.
23 MR. CLARK: Randy Clark, Westinghouse. I hate to use the term because it is so
24 over-used, graded approach. But I was wondering whether, because it almost -- it could imply two standards
25 which might not be a good idea. But there seems to be at least some sentiment that, when it deals with
surface contamination and more straightforward cases of contamination, decontamination, that 1.86 seems to
do a pretty good job there. And that is a standard.

1 An instrument, we don't just buy instruments willy-nilly off the shelf and turn them on
2 and use them like that. They are calibrated to that 500 dpm standard, whether it is beta-gamma and the
3 alpha instrument is also contaminated to the disintegration standard. So these are not willy-nilly, which I
4 think I heard a couple of comments that might lead you to think that. And then use the more -- in those
5 by case-by-case volumetric contamination standards, to use a more regimented, systematic approach, and what
6 I hear is perhaps a lower detection standard for those case-by-case, more difficult cases that have to be
7 analyzed on a case-by-case basis by the Commission. Is it graded -- is there a way -- this is really a
8 question. Is there a way to have a graded approach to this so that we can keep the good and not throw the
9 baby out with the dishwater, sort of thing?
10 SPEAKER: I think there might be a method of having a graded approach. I think the
11 case-by-case -- some elements of the case-by-case should be retained. It all depends on how our Regulatory
12 Guide would be developed, if one were developed to replace Reg. Guide 1.86.
13 1.86 really wasn't geared toward free release of materials, it was written for the
14 termination of operating licenses at power reactors. It contains a lot of information in there. One thing,
15 just one component is this table that everybody has adopted. So I guess one of the questions I would like
16 to ask you is, what elements of the case-by-case would you like to keep in the Regulatory Guide, a future
17 Regulatory Guide?
18 MR. CAMERON: Can we hear from you particularly, Ray, if there are things that you
19 think, and hear from others? Grab the microphone.
20 MR. RAY TURNER: State the question once again, I didn't hear the last.
21 MR. CAMERON: Are there elements of the current --
22 SPEAKER: Case-by-case that you would like to retain?
23 MR. CAMERON: -- case-by-case you would like to retain? You think they ought to
24 retain as they go forward.
25 MR. RAY TURNER: I believe that I am not fully enough experienced on that to make
a good comment on it.
SPEAKER: Well, for example, 20.2002, 20. -- the old 20.302, would that still be

1 applicable for certain case-specific releases? Is that a good vehicle to use under clearance for unlimited
2 material?
3 MR. CAMERON: We do have a comment here. Val. Do you want to comment on this
4 in particular? Randy, do you have a comment on this?
5 MR. CLARK: No, I just want to add something.
6 MR. LOISEL: Are we clear?
7 MR. CAMERON: Yeah, go ahead. You are clear.
8 MR. LOISEL: I am Val, Armor. If we are getting in the mood of retaining things, I
9 move that we retain Reg. Guide 1.86.
10 MR. CAMERON: Trish.
11 SPEAKER: Are you going to second that, Trish?
12 MS. HOLAHAN: No, I am going to ask a question. Trish Holahan, NRC. I guess, and
13 I have heard a number of folks say about the good that is in Reg. Guide 1.86, and maybe I can follow up
14 on what Tony had said, is if some of the individuals that would support keeping 1.86, would they indicate
15 whether there is a need to revise it or make changes to it?
16 MR. PALMER: Art Palmer, ATG again. Yeah, I think one of the big deficiencies on
17 Reg. Guide 1.86 is that it doesn't specifically address tritium and carbon-14. I think the dose -- the 5,000
18 dpm per hundred square centimeters for tritium and carbon-14 is, well, probably a factor of a thousand too
19 low. I think that would be one revision to 1.86 that would be helpful.
20 As far as the 20.302 or the current 20.2002, there is a fair amount of guidance, if you
21 dig it out, on what to include on one of those kinds of applications. And by and large, it is pretty good
22 guidance. The one thing that I think is missing is a real description of scenarios to be addressed in the
23 case-by-case basis, so it is left up to the licensee to kind of invent scenarios. And, you know, so I mean
24 you can get from, you know, any sort of extreme from where the facility or the particular equipment is
25 buried in the ocean, there would be no dose at all, to a burying baby scenario, that -- you know, with all
the implications there.
So I think that would be helpful if you spec scenarios, and maybe some realistic guidance

1 on codes to be used in case-by-case scenario development or analysis, that would be helpful. PG-808 is a
2 kind of obscure document, but for those that are familiar with it, I mean that is helpful in using RESRAD,
3 you know, those sorts of things. So, anyway.
4 SPEAKER: Can you step up to the mike, since Chip had to step out?
5 MR. ADAMS: Vince Adams, DOE. Another weakness I think with 1.86, based on my
6 experience in working with folks in the field, and I am not a health physicist, so forgive me if I butcher
7 this, but is the non-standardization of calibration of instrument in the field. For example, you can have
8 five different companies coming in and measure the same piece of material and you are going to get five
9 different readings. Some could be twice, five times as much. And the reason is because they are using
10 different standards for calibration.
11 For example, my understanding how they calibrate these instruments, you take a piece of
12 standard material, for example, technetium-99, and you put it on a backing of steel. And company A may
13 use a backing of steel, company B may use a backing of nickel, and you are obviously going to get a
14 different reading to calibrate your equipment. Well, they are using that same instrument to go there and
15 measure all types of material. So you can get many, many types of reading based on that calibration, so it
16 is not standardized, and I think you tend to lose credibility if you are not, you know, if you are not coming
17 up with basically the same type of reading.
18 MR. CAMERON: Okay. Any other comments about 1.86? Yeah.
19 MR. GENOA: Very briefly. Paul Genoa, NEI. If you decide to keep Reg. Guide 1.86,
20 the reactors would like to use that as a basis, too.
21 MR. CAMERON: Anything else, friends? Yeah, go ahead, Tony.
22 MR. LEMASTRA: Going back to the non-detectable terminology, what that essentially
23 does is -- or let me back up a minute. Earlier I made a comment that some things were detectable by scrap
24 monitors, and someone said that that is probably not the case because we don't have everything coming out
25 at the maximum. If the practice is to set your instrument so that zero detectability is at the limit, then you
have no real way of knowing how close to the limit you are getting.
Let's assume that instead of 5,000, we are not able to detect 4,000. We are looking at

1 almost -- it is about 1,800, a quick calculation I did was about 1,800 picocuries per square centimeter. It
2 seems, from what I am hearing, that we may not have the ability to say this is clean, this is 200, this is
3 500, this is 6,000. We are just looking at it and saying, whoops, over here is 6,000, everything else is
4 essentially zero.
5 If that is the case, then, again, the possibility of releasing relatively large quantities of
6 material that are capable of causing alarms just all of a sudden went up in my mind from what I picked up
7 today.
8 MR. CAMERON: Steve, did you want to --
9 MR. KLEMENTOWICZ: I have a question, a follow-up question for Tony Lemastra.
10 Reg. Guide 1.86 is based on concentration per unit area, a hundred square centimeters, for example, and
11 they have a maximum limit for a square meter. Are the measurements that you are concerned about
12 volumetric, meaning that you are dealing with truckloads of material coming in to a scrap dealer and you
13 are taking gross counts from a radiation detector, then translating that on the weight of the tonnage to the
14 activity that might be recorded?
15 MR. CAMERON: Tony.
16 MR. LEMASTRA: Tony Lemastra. No, the original calculations that I did were based
17 on the maximum 5,000, and it essentially looked at about five tons of material in a single load. But, you
18 know, it wasn't the whole load, and it was only looking at I believe something like 30 centimeters from the
19 wall of the vehicle, of where you were getting the contribution from.
20 MR. CAMERON: Okay. Let's move on here. Art. Then we are going to wind up this
21 session, I think, friends.
22 MR. PALMER: Okay. Just a real quick -- I have done this -- Tony, I have done this
23 empirically, where I have looked at what the detection limit was with a frisker, a two inch pancake GM
24 probe. And if you have a little pile of soil with cesium contamination, cesium-137 contamination in it, you
25 are looking right at about a hundred counts per minute, which equates to about 5,000 dpm, or the
detection limit of that particular instrument. It ranges around 50 to 150 picocuries per gram in that soil
sample, if you do a lab analysis behind that. Okay. So that is a good, empirically derived number.

1 MR. CAMERON: Who else have we got? John, is it you? Go ahead, Terry.

2 MR. SIVIK: Maybe I ought to not speak for the NRC staff, but in industry, if my boss
3 says to me, I don't think 1.86 is working, and I went out and I had some sessions and said, oh, yeah, it is
4 working, he would come back and say, well, fix 1.86. And I think the NRC staff is up against that wall.
5 Their Commission has reason to believe 1.86 is not working, so the staff has to look at ways to improve the
6 application of 1.86 to ensure that materials don't get released, as the example that was talked about got
7 released, and then came into another facility and was determined to be detectable.

8 So if there are weaknesses to 1.86, it speaks to the measurement techniques, the calibration
9 techniques, the instrumentations being used, and possibly even the cleaning procedures. A lot of
10 governmental agencies dictate specific cleaning procedures before you even measure. Everything gets cleaned
11 and then measured, as opposed to trying to measure it first and determining that it is clean. I just throw
12 that out as food for thought.

13 MR. CAMERON: Anybody want to respond? No. Okay.

14 All right, friends. You know I think this session is a good example of probably what the
15 whole two days might be about, is it is important, I think for you and the NRC, to reflect on these
16 different issues. It is important for them to hear from you here in real time. But I suspect after you have
17 kind of mulled this over a little bit after this conversation of these two days, you know, things might come
18 in your mind, and you are urged, you heard from the opening comments, throughout today, to please, you
19 know, stay involved. You know, send in your thoughts, you know, write them down. Call in, you know, get
20 your input in there in an appropriate fashion, because you may come to a more subtler understanding or see
21 an aspect, a problem or an opportunity you hadn't before hearing this kind of conversation. So, please don't
22 let it stop just with participating in these workshops.

23 Let's take, Barbara, if it is all right, take a break till 3:00. Is that all right?

24 MS. STINSON: 3:15.

25 MR. CAMERON: All right. 3:15.

MS. STINSON: Yeah.

MR. CAMERON: A half hour break?

1 MR. STINSON: You don't need it, okay.

2 MR. CAMERON: Let's go -- 3:00, all right? Okay, a 15 minute break. Grab some

3 sunshine, grab some caffeine. We will see you back for the next session.

4 [Recess.]

5 MR. CAMERON: And Tom Hill said that it was the State of Georgia -- to think about

6 during Frank Cardile's presentation on some other alternatives for control of solid material.

7 Yeah, Val.

8 MR. LOISEL: Before we get into Session 4, and I apologize, I am going to have to

9 disappear, but do you have a mechanism for recording, something to talk a little bit later, Barbara, or

10 something like that?

11 MS. STINSON: Sure.

12 MR. LOISEL: But there are two things that were given me at break time. Number one,

13 and for things for people to think about, number one is shield blocks are not the solution for everything.

14 MS. STINSON: What is it?

15 MR. LOISEL: Shield blocks are not the solution for everything. In other words, that is

16 a restricted reuse option and it has limited capacity. We can't make all of this material into shield blocks.

17 And the second thing was, when Terry Sivik came on about fixing Reg. Guide 1.86, I think the NRC

18 needs to explain its position in the new venue for risk-based, dose-based analysis and embracing that as our

19 future. I think you substantively have to say why you are doing that. You know, we are all on your side

20 and we agree that is the way to go, but the community doesn't know that. Thank you.

21 MR. CAMERON: Okay. Thanks, Val. And I think the need for a risk-based rationale

22 probably applies to anything that we would come up with. But this session is going to take a look at

23 alternatives and what we want to make sure of is that all of you understand what the description is of each

24 of the alternatives that Frank is going to talk about. So after he is done, we are going to go out to you

25 for questions about those alternatives. And I think that that will lead us into a process of building some

new alternatives through your help.

We have an opportunity to do some brainstorming here. We have already heard some

1 suggestions on alternatives. Keep Reg. Guide 1.86. Tony Lemastra this morning talked about the dedicated
2 melt idea. And whatever alternatives we get from you, we want to also make sure that everybody
3 understands those. Keep in mind that we don't want to get into the process of evaluating these alternatives
4 at this point, that is going to come in later sessions.
5 But we do want to make sure that we know what is involved with a particular
6 alternative. And as many of you have talked about, we have different materials involved, we have different
7 end uses. The reuse, the recycle, the disposal. So one alternative may not fit all of these situations. Maybe
8 you will build a solution that has a number of alternatives.
9 And I think Frank is going to get into some of the terminology problem. You will hear
10 him talk about restricted use. What exactly does that mean? You just heard a statement here about shield
11 blocks that was termed restricted reuse. So we want to make sure that we get our terminology correct, too.
12 And I am going to turn it over to Frank now.
13 MR. CARDILE: Okay, thank you, Chip, and good afternoon. We have just had a lively
14 session discussing NRC's current approach for control of solid materials. NRC is also examining what other
15 approaches it could use to effectively control solid materials, and has developed a preliminary list of broad
16 alternatives. For reference purposes, these options, or these alternatives are discussed in the issues paper in
17 the Federal Register Notice at page 35095 and 35096.
18 The purpose of this session, as Chip has noted, is to explain the broad alternatives, make
19 sure that they are clear, and to explore other alternatives that we may not have thought of. The next three
20 sessions will explore in some detail how we would evaluate potential alternatives.
21 In the first alternative listed, NRC would continue its current methods of controlling
22 releases, that is, surveys based on existing guidance. The issues associated with this approach have been
23 discussed, as noted earlier in the previous session, and, as also noted, this approach would continue to result
24 in some releases.
25 To formally establish criteria for control of solid material, NRC could go through a
formal rulemaking process with analysis of health and environmental impacts, and economic impacts. In
such a process, three broad levels of control could be considered.

1 In the first alternative listed and discussed in the issues paper, a dose level could be set in
2 a regulation below which materials could be released for unrestricted use by the public. A rationale for
3 this alternative is that it would allow some productive use to be made of these materials, rather than just
4 throwing them away. In this alternative, before any material is released, it would be monitored to ensure
5 that it would result in no more dose than allowed. It could then go anywhere, including to a scrap yard, to
6 a steel melter and manufacturer, and then on to any unrestricted use, including into consumer products and
7 industrial products.
8 Within this alternative, there are sub-options. The level at which material is to be
9 monitored could be set at progressively more restrictive dose levels, including those noted in the issues paper,
10 such as 10, 1 or 0.1 millirem per year above background, or monitored to a dose level that is no higher
11 than, or cannot be distinguished from background.
12 A second alternative would also set a dose limit in regulations, but would restrict where
13 material could go to only certain authorized uses. For example, girders in a large bridge. An advantage,
14 an obvious advantage of this alternative, compared to unrestricted use, would be that it would make some
15 use of these solid materials, but would limit uses to those that were less likely to cause public exposure.
16 To make this alternative work, it may be necessary for NRC to issue a license to those
17 persons receiving the materials, for example, the scrap yard owner, the steel manufacturer, so as to ensure
18 that the material only went to its restricted use. From this licensed producer, it could then go on to its
19 authorized uses, such as in this bridge. And the scenario that we would envision would be somewhat similar
20 to the license termination rule that just went out, where restricted use still means that the NRC license has
21 been terminated. So once this material goes -- a possible envisioning here is that once this material went to
22 this licensed smelter and we were sure it was going to its authorized use, then once it gets to the bridge and
23 is in the bridge, it is no longer licensed by NRC.
24 A variation on that might be that, you know, what we were just talking about, what Val
25 was just talking about, where the authorized use was in perhaps some sort of licensed situation like a shield
block at a nuclear facility or in steel drums that go to low level waste burial. But those are two variations
on the word "restricted use," and I think that may be somewhat of what Chip was thinking of.

1 Of course, a bridge with girders in it only lasts so long. And so what restricted use does,
2 except for short-lived nuclides, is to defer the ultimate decision about what should be done with these
3 materials for the lifetime of the authorized use.
4 A third alternative would be to establish in a regulation that solid materials from certain
5 areas where radioactive material was used or stored would not be monitored, but would rather, based on the
6 fact of its specific location in the facility, not be allowed to be released for either an unrestricted or
7 restricted use, but instead sent for disposal to a licensed disposal site. A rationale for this alternative is
8 that there would not be a release of certain solid materials, thus removing concerns associated with allowing
9 solid materials into products for public use.
10 The issues paper envisioned that this alternative might apply to, for example, equipment
11 such as steel tanks or steel pipes in specific areas such as process areas in the containment or auxiliary
12 buildings of a reactor, or, I think as Bob Nelson mentioned earlier today, it might apply to specific
13 furniture items like a chair in a hot laboratory area in a hospital or medical facility, or research facility.
14 Whether such a limitation would also make sense for other areas of a facility, for example,
15 a clean warehouse or the ventilation duct work in a control building, or clean waiting rooms at a hospital,
16 or some of these other materials that we have talked about today that might apply to specific furniture
17 items, like a chair, in a hot laboratory area in a hospital or medical facility or research facility. Here
18 there's such a limitation, it would also make sense for other areas of a facility -- for example, a clean
19 warehouse or the ventilation duct work in the control building or clean waiting rooms in a hospital, or
20 some of these other materials that we've talked about, other than steel in a confined -- is a matter that
21 would be open to question, and obviously open for some discussion.
22 This list that we've put up here and that we're presented in the issues paper is not meant
23 to be all-inclusive. As you can see, we've listed other alternatives that are proposed at these meetings or in
24 your written comments or in e-mail to us. These comments and suggestions could be suggestions for
25 alternatives that we've not thought of, or they may be variations on alternatives that we have thought of.
Each of these alternatives have pluses and

1 minuses. The purpose of our examination and the purpose of
2 any rulemaking effort is to evaluate all health and
3 environmental impacts and economic impacts in an open forum
4 and evaluate the trade-offs between the alternatives, so
5 that an informed decision could be made that protects public
6 health and safety and serves the interests of the country.
7 This examination will also examine the capability of each of
8 the alternatives to assure that the appropriate controls are
9 maintained.
10
11 And with that as background as to what we've thought of so far, we would invite your
12 comments and questions on the list of alternatives that we've listed, and also invite your sugg3estions for
13 other alternatives.
14 SPEAKER: Okay. Thanks, Frank. As we noted earlier, we're going to do an evaluation
15 of all these alternatives in some future sessions this afternoon and tomorrow. And, what might be useful
16 now is to make sure that everybody understands what's included within a particular alternative. Since we
17 have this nice list, maybe we should proceed down that.
18 We started to ventilate a lot on the "continue the current practice" alternative, I think
19 during the last session. But are there any questions on what the implications or what "continue the current
20 practice" means?
21 Tom, I assume -- Tom, do you want to ask a question on that?
22 MR. HILL: Tom Hill from Georgia Department of Natural Resources. I think this is a
23 clarifying question for my mind. In the list of alternatives, and using the term that I heard this morning
24 on the radio, Lutz atoms having no radiological history, the -- if there are atoms in the facility that have
25 not been associated with the use of radioactive material, I do not see how regulators -- us, one of those --
has an interest in that atom for this rule. So it's a little unclear to me as to how that became an
alternative, how that wording got in this alternative.

1 SPEAKER: Well, I think it's -- let me clari-, let me ask something, Frank, before you
2 go on. Tom, you're taking this to the, the third, third diamond or the fourth diamond down? Okay. This,
3 the question on the fourth diamond, the fourth alternative set forth there. Go ahead, Fran.
4 MR. CARDILE: We grappled, we discussed that quite a bit in preparing the issues
5 paper. And what the issues paper tries to focus on is, for example, tanks, pipes, in control building or,
6 container buildings or auxiliary building. Or if you have a particular piece of equipment in a laboratory,
7 a hot laboratory, and what we try to draw is a distinction based on process knowledge that, for example,
8 ventilation, the duct work, the ventilation duct work in the control building from your knowledge how it's
9 used and where it is probably outside of what would be considered by the fourth diamond.
10 The fencing around the facility is another area where obviously it's not involved in the
11 process. So, I don't -- at the moment we're not trying to more this fourth bullet to areas where it doesn't
12 belong.
13 SPEAKER: Is it possible that there, there may be some interests who would want to
14 advocate an alternative similar to what Tom is talking about?
15 MR. CARDILE: That the fourth bullet would apply to the site?
16 SPEAKER: To a broader area.
17 MR. CARDILE: To a broader -- I think the discussion in the issues paper doesn't go
18 there, but obviously that would be another alternative that --
19 SPEAKER: That could be an alternative.
20 MR. CARDILE: That could be thrown on the table.
21 SPEAKER: All right. Bob.
22 MR. NELSON: I kind of view it as the same alternative. The, under the fourth diamond
23 you have a situation where, uh, it's in this box, it's considered to be contaminated and must be disposed of
24 as low-level waste. If it's in this other box, it's not and it can be free-released.
25 The question in the fourth diamond is, where's the line between the boxes? What is the
definition of box "it's contaminated" versus the definition of the box "it's not"? And in the fourth diamond,
that's the, in my mind, the crux of the question, defining where you establish the boundary so that it can be

1 clear, the rule can be clearly implemented?

2 I agree with you that we don't have any basis to control stuff on the left, on my left-hand
3 box. The question is, where is that left-hand box? Where is the boundary between those two boxes? And
4 that has to be, in this type of a process would have be defined for all the various licensee types. Not just
5 the power reactor, but the research facility, the university, the doctors, the hospital. And where is the line
6 between those two?

7 SPEAKER: Okay. And that was Bob Nelson from the NRC. And just remember to
8 state your name and affiliation for the record.

9 Let's keep going on this fourth diamond. I take it that's what you want to talk about,
10 right, Norma?

11 MS. ROGERS: Norma Rogers, Allied Signal. Establish a regulation that does not
12 permit release of materials that had been in an area where radioactive material was used or stored. At our
13 facility, because of the design, originally, of the facility, the restricted area from NUPAR 20 incorporates
14 my office. My office doesn't have any materials in it. But the way I read that, if I was, if I were going to
15 take a chair out of that office, or a file cabinet or anything, it's been in the radioactive material area. So
16 I can't do anything with that. That's the way it reads to me.

17 So in order for our area to eliminate all the offices from being in this with the
18 monitoring back and forth, it was not feasible, the way the plant was designed. And we can't afford to go
19 back and redesign 45 years of established buildings and things like that to do this. To my understanding,
20 that fourth diamond says that the paper, the chairs, the file cabinets -- it's all a loss.

21 SPEAKER: And is that -- we'll go then to the NRC staff for a clarification on this.
22 But that situation would result because of the definition within Part 20 that you're within the restricted
23 area. Was the staff thinking on this alternative is that area where radioactive materials is used or stored, is
24 that synonymous with restricted area? Frank? Steve?

25 MR. CARDILE: All right. Let me just start very quickly. In preparing the issues
paper, we didn't try to stay with, you know for the purposes of the issues paper, since it's really just a,
information gathering, put some information on the table. It's not a rule.

1 We did not go to the, try to go by a strict definition of what's in Part 20; we were
2 trying to be more like uh, Bob Nelson was talking about, that, all right, for example, does your office, does
3 it process radioactive material? Does it, do you store radioactive material in your office? If the answer is
4 no, then probably your office would fall outside this fourth diamond.
5 SPEAKER: But certainly that could be an alternative, I suppose, is to define it
6 synonymously with restrict area. And then you get into all the sorts of constraints that Norm was talking
7 about.
8 MR. CARDILE: Well, and as, and as a matter of fact we're looking for comments and
9 suggestions and input on, well, what is the problem with defining it in different ways or putting the
10 boundary in different ways. I mean, those are great suggestions and comments.
11 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I believe you understand it
12 correctly. Now remember, that's just an alternative, and there are some people who like that option, that
13 anything that ever enters the hot lab or nuclear power plant will never, the only way it will be disposed of
14 is going to a low-level waste facility. So, that's an option on the table for discussion purposes.
15 But I believe you have read it correctly, that theoretically if that option was chosen, your
16 desk, your chair -- because it is in that area, the radiation area -- would ultimately go to waste under that
17 option. But that's what we want to hear your comments from. Do you support that or --
18 MS. ROGERS: No!
19 [Laughter.]
20 SPEAKER: Okay. We'll, we'll get into the, to the support part later. But I think that's
21 a useful clarification about what that particular option means. Paul?
22 MR. GENOA: Yes, Paul Genoa with NEI. And I think the last presentation explains --
23 one of the challenges, as Frank pointed out: where do you draw the line? Which box is appropriate? Is
24 it everything within a restricted area, radiation controlled area, contaminated area? You know, you name
25 it. But I think that's just part of the problem.
I think the other part of the problem with number 4 bullet is that it stops or completely
removes any incentive to use decontamination and material recovery. You have materials that are within

1 this facility -- and actually may have very high levels of contamination associated with them. This
2 precludes any opportunity for technologies and companies to develop to provide the tools to make that
3 material clean. And those tools exist.
4 We know through electro-polishing; we know through grit-blasting; we know through
5 chemical decontamination and a variety of technologies that haven't even been brought to bear that those
6 materials can be made clean and released safely to the public. And this kind of approach, I think, is
7 inappropriate in our country because it blunts technology innovation.
8 SPEAKER: Okay, and that's a good evaluative comment, I think, that we should bring
9 up when we get to evaluation.
10 Are there any more questions on exactly what alternative four up here would include?
11 Or alternative three? I think Frank already raised a host of issues on that right now. Gwen?
12 MS. BOWER: I had some questions on alternative number three. Oh, Gwendolyn Bower
13 -- sorry -- State Department.
14 One, has there been an assessment done on the additional burden that might be put on the
15 regulatory community if that is instituted, that we have this limited use? Should I just go through my list
16 of questions?
17 SPEAKER: Sure. Why don't you do that.
18 MS. BOWER: The other one, would that alternative greatly increase the amount of
19 releasable material, or would it then take pressure off the uh, waste disposal community?
20 And, are we then -- if we institute alternative number three, are we prepared then to
21 assume limited-use imports? And would that, would we see an increase or, you know, higher levels of those
22 types of imports?
23 And the concern, I guess for me in the work I'm doing now is that, if we institute
24 something like that, are we likely to see, you know, orphaned wrenches now, instead of just orphaned sources
25 or --
[Laughter.]
MS. BOWER: -- you know, orphaned steel girders, once they're set out and all of a

1 sudden, they're not accounted for. They're released to limited use and people lose track of them?

2 SPEAKER: Okay. Those are, those are all good questions. And I guess to answer them,

3 you really need to -- we really need to understand what's included within that particular alternative. And

4 I didn't know whether you were limiting it to the restricted use that Frank described, where you would use

5 it in a bridge girder or something like that. We need to put a finer point on that, perhaps.

6 MS. BOWER: That would help -- at least for me, the non-scientific type. That would

7 certainly help.

8 SPEAKER: Okay, Tony, do you want to try to help us define this?

9 MR. LEMASTRA: No. No, I just wanted to make a comment on three.

10 SPEAKER: Okay.

11 MR. LEMASTRA: With, with steel, from a practical standpoint, we're probably looking

12 at Cobalt 60, having one of the longest half-lives of materials; it's likely to alloy with the steel. In the

13 case of aluminum, you have a whole different problem where depending on how the aluminum is made, you

14 can essentially dissolve just about anything, any metal into the aluminum. So you no longer are limited to

15 certain half-lives.

16 The question I would have is, what happens at the end of that half-, at the end of the

17 useful life, out of some aluminum materials when, you know, the structure, whatever it is, is, has reached its

18 useful life.

19 Under three, it sounds like the NRC has essentially written it off and it's now free for, for

20 just recycling to commerce. Is that true, or, or would there be a continuing follow-up on it?

21 SPEAKER: Frank?

22 MR. CARDILE: As I mentioned, there's -- Frank Cardile, NRC. There's the model or

23 an example is the restricted use of the license termination rule, where in essence the NRC did write off or,

24 you know, release a site from, or terminate the license at a site for the reason that the radioactivity would

25 be low enough that during the course of the restriction, it would decay to below, you know, levels that were

considered acceptable.

That's, as we've talked about, perhaps easier for a site where the site is just right there.

1 And you know -- you know, it's fairly straightforward that the stuff is decaying. It's
2 a question we have to grapple with, that if you, if you restrict the use to a certain authorized use, you have
3 to -- and you're authorized use. You have to -- and you're going to have that use be unlicensed, like an
4 unlicensed bridge, then you have to have determined in advance that these are the nuclides in that bridge,
5 and at the end of a typical lifetime of that use, whatever it is, bridge or something else, the levels will have
6 decayed to X, you know, some very small value. And this will have to have been found in advance to be
7 acceptable.
8 Then in that case, maybe this will all work. But, you know, it has to be -- the system
9 has to be set up, and we haven't obviously set it up yet, because, that's why we're coming and talking about,
10 well, what are the problems, what are the questions related to something like restricted use.
11 An alternative restricted use, as we've been talking about, is that perhaps it goes into
12 some alternative license-type use, like a drum that you package radioactive material in, or tanks for another
13 nuclear power plant. That's a little different because there it's pretty straightforward. That stuff just stays
14 under license. So, those are -- as Chip was just mentioned, those are variations we're thinking about. We're
15 interested in your thought and, you know, what to do with the material when it's done.
16 Another question we would pose to you is that, again, in the license termination rule,
17 unrestricted use and restricted use were presented as either-or. We gave licensees the option. We said, you
18 can release the site for unrestricted use or restricted use. Here, we might say -- we might have an either-or
19 here in which you'd say, well, the licensee make the decision about whether this particular piece of material
20 would go to unrestricted use or restricted.
21 Or, we could prepare, or the rule could be written in such a way that says, based on, you
22 know, perception issues or issues or broad issues, that only restricted use is allowed. That's a little variation
23 to the license termination rule. It's another area where we're looking for comments.
24 I might just quickly go back to, I think, the first comments -- and it's sort of along the
25 same lines that Gwen had. And that is, well, have we thought about the, you know, how we would license
or what the impact was or would be on licensing of -- what it would take to license, or the impact on, for
example, states to license first uses, or smelters or scrap dealers. That's again what we're trying to do in the

1 next few months. What are the ramifications? What are the problems, so that when we go back to the
2 Commission in March of 2000, we can say to them, well okay, we have this restricted use option but these
3 are the problems, etc. etc.
4 So, we're interested in your comments today and again in the public follow-on public
5 meetings. We're also interested, I think, as Mike Lens pointed out, that when you go back to your home
6 locations and sit down and think some more about, well what do I know about problems, not only problems
7 but potential good points about each of these alternatives, let me put them down and submit them in written
8 comments.
9 SPEAKER: Okay. Thanks, Frank. We're going to go to Bob Nelson and then to Mike
10 Matia. It might be useful to just label the various types of restricted use alternatives here so that we can
11 go back at some point and address all of the four questions that Gwen had on restricted use.
12 MR. NELSON: Yeah, I was just gonna comment that we did have four questions on the
13 table and I'm not sure we answered or attempted to answer all four of them. And I was concerned that we
14 were getting ahead and possibly not addressing those.
15 I think another question that Gwen raised was, would this, how would this authorized
16 restricted use be applied to imported material. So I would just caution that we need to address these
17 questions as they come up and, so we don't lose site of them.
18 And the answer to that question -- we haven't addressed that yet. It's probably an issue
19 that we need to look at. The international community is also looking at a possible authorized first use in
20 their clearance framework. So we need to stay abreast of what they're considering in that to be as
21 compatible as possible with what they do. And so I hope that answers that question as much as we can.
22 And then on authorized use, I look at it as an intermediate step to ultimate clearance.
23 So when you decide -- when you look at restricted or authorized use, whatever you want to call it, the
24 analysis that you apply to that use is probably identical; certainly not unlike what you would do for
25 clearance directly from the facility . You have to make the same kind of determination.
At the end of the authorized use, it will have decayed to such a level that you could
release it, that it would be cleared for unrestricted use. So it's the same, really the same numbers. You're

1 just installing a process or a step in clearance. It's kind of a gradation of clearance. But the final step is
2 clearance for unrestricted use.
3 SPEAKER: Okay. Mike?
4 MR. LESNIK: Gwen's question did prompt the thought, right now, who, who has control,
5 or who has authority over the material that has been or is contaminated? And who has control or
6 authority over import material that is contaminated or has been decontaminated? And I guess the third
7 offshoot is, is there control over importing finished product that was made from material that was once
8 decontaminated?
9 SPEAKER: Can we get some clarification on those questions, either from the people at
10 the table or from Stu Trevy, our Office of General Counsel? Anybody want to try to address that? Bob.
11 MR. NELSON: Bob Nelson, NRC. We do have a regulation that addresses both export
12 and import of radioactive material. It's 10 C.F.R. Part 110. And to, to export material, you would need
13 an export license under the terms of that regulation. If it is considered to be radioactive -- if it has first
14 been cleared and determined to be outside of our, and cleared from our regulatory control, then it would,
15 would not need such a license.
16 It's similar coming in. If the material was determined to be cleared by another nation,
17 and we had no knowledge, the receiver had no knowledge of its, its content, clearly it wouldn't need an
18 import license.
19 But there is a process for importing material for recycle or reuse or even disposal. And
20 those procedures are in Part 110. You, basically, for an import have to have a, an end user who has agreed
21 to accept the material. And if that were to be in an agreement state, then that agreement state would have
22 to agree that that material, with that, with that import as well. So, before you could bring it in, you would
23 have to have an accepted reuse for that material and a designated person to receive it.
24 SPEAKER: Does that take care of your questions Mike and -- maybe Gwen, do you
25 want to put any clarification on that Mike?
MR. LESNIK: A follow-up, let's say. Let's say the European Union goes forward with
its, I guess the equivalent of the 1 millirem, and we stay where we're at. Does that, does that mean that

1 anything that we import -- if we were to import scrap, that we would accept their levels, or would they
2 have to be cleared at Reg. Guide 186 levels, if that were to occur tomorrow?
3 MR. NELSON: Bob Nelson, NRC. I'm not sure I can answer that based on my
4 knowledge. I'd have to go back and look at that. I'm not clear. So rather than speculate, I'll --
5 SPEAKER: And we'll try to get you an answer to that question. And we'll go to Gwen
6 on this now. But for consistency purposes, is adoption of the EU standard, is that an alternative that should
7 be recognized?
8 [No Response.]
9 SPEAKER: All right. Gwen?
10 MS. BOWER: Gwendolyn Bower, Department of State. Mine was just a follow-up
11 question to what you had said. You said there needs to be an end-user. That end-user then has a -- I
12 mean, they're under all the regulations of a licensee, right? So in effect, it's a de facto option 3, right? If
13 we're talking about -- is it then that they have restricted use for this item and it's expected then to be
14 recycled at some point? Or is this just --
15 MR. NELSON: Bob Nelson, NRC. I really wasn't trying to distinguish between material
16 that was coming in for recycle or any other purpose. IF it's radioactive material that's coming in, coming
17 into the United States -- I'm looking more at waste-type material now. But okay, there needs to be an
18 authorized recipient, someone who is licensed to receive the material, that's authorized to receive the
19 material, and is going to use the material and, for a licensed purpose.
20 Now that purpose might be decontamination and clearing the material and selling it as
21 recycled material within our regulation. It may be disposal of that material in a licensed low-level waste
22 disposal facility. It might be reusing the material in a licensed practice. But there has to be a designated
23 user. This prevents just, just a foreign source dumping material on our shore.
24 The other point I wanted to make was, if it's an agreement state, then the agreement state
25 has to agree, basically agree to that, to that same process. So the agreement state would have to say, yeah,
this licensee is within my jurisdiction and we agree that this material can come in and my licensee can use
this material.

1 SPEAKER: Okay. Let's go to John Karnak and then see if the agreement states have
2 anything to say on this issue. And then perhaps on this issue at least try to identify some other alternatives
3 here.
4 MR. KARNAK: John Karnak, EPA. I didn't write 110, but I did read it. And my
5 understanding -- I think that the important distinction is that 110 deals with license materials and licensees,
6 whereas I think Gwen's point was that if, for example, something is contaminated because a source was
7 melted into a batch of metal then that metal comes in, there wasn't a licensee involved with that metal as
8 it's coming into the United States. So I think you have a different situation than you have with 110. If
9 it's indeed a licensee and licensed material, then it clearly falls under 110. It's not quite as clear if the last
10 person that held it was not a licensee.
11 SPEAKER: Would it be -- it seems like it might be helpful at some point for the NRC
12 in writing or whatever to try to clarify the answers to some of these regulatory questions, to be able to
13 understand these alternatives.
14 MR. NELSON: Bob Nelson, NRC, again. If it's an import, we don't license people, users.
15 We, the person who imports the material would have to have a 110 license, regardless of who's bringing it
16 in. So what I was speaking to the licensing process for the person who's receiving the material. If it's
17 contaminated material, it's waste-type material, then it falls under the framework of 110 and the importer,
18 the U.S. company bringing the material in, would need a Part 110 import license. But we would not issue
19 that license without those conditions being met that I mentioned before.
20 SPEAKER: Okay. Quick follow-on?
21 SPEAKER: Yeah. My point was that if the person bringing it in was a steel company
22 and not a licensee, then you wouldn't see it in 110.
23 [Laughter.]
24 MR. NELSON: They would still need an import license, I think.
25 SPEAKER: Okay, the point that's being made is that you'd never find it because the
things that are coming in, they're coming in without any control.
All right, Paul, you've been waiting patiently over there. Did you want to make a

1 comment on the --

2 SPEAKER: On the options.

3 SPEAKER: -- the options. Go ahead.

4 MR. GENOA: The question at hand. And I think that, I think this last little discussion

5 is important. I think there ought to be follow-up questions. I mean, the 110 had State Department

6 involvement in it at some level. I think that's important. But I think the real question that's being asked

7 is, are there materials that could come in from abroad that we wouldn't know about? And the answer is, of

8 course. And by having a consistent standard, it's more likely we'll know about it and there's probably

9 things that can be done.

10 But my point is up here on, are there other alternatives to addressing this material? And

11 I think that there is an alternative that we pointed out before, and I think it's a combination of two

12 choices up there. And that's number 2 and number 3.

13 The first one is that you need to acceptable dose levels that would control materials that

14 can be released from those materials. And that's really what your clearance standard is. And we think

15 that's important. We think it should be consistent and so forth and dose based. But there has to be some

16 criteria.

17 But I think what marries nicely with that is, what you're saying is, as soon as you exceed

18 that criteria, what are your options? Well, your option today is only one, or maybe several. Keep it

19 within a license community application or go to disposal at a envirocare type facility. And I guess the

20 question is, if you have one atom more than whatever your criteria is, does it automatically mean it has to

21 go to that kind of facility? And the answer might be no. The answer might be that there are other

22 restricted applications that would safely allow that material to be released and they should be explored.

23 And I think there are a whole range of things that we could think about.

24 The unique thing is, if you set the criteria first, and if it's dose-based -- let's say one

25 millirem -- that sets a boundary that allows you to evaluate restricted values. Because what you're really

saying is, we're going to use a one millirem criteria, but we're gonna implement it in the following way:

we're gonna make broad assumptions, as 1640 does, one what all the implications are between the actual

1 concentration, the dose pathway and the dose. And we're gonna do that conservatively because we have to
2 cover all possible situations, 'cause hey, this is unrestricted. Worst case.
3 Now you could envision situations where licensees could come forward, as they can today
4 under 2002, and lay out a rationale that says, I propose to take this material that is in fact slightly above
5 this release criteria, but I intend to impose the following restrictions on its use. It's only going to get
6 disposed of here. It's only going to get reuse there. It's only going to get recycled in another place. And
7 under those criteria, you could establish institutional controls, if you will, or whatever, that may use the
8 same dose standard. The worst case individual under this restriction is still only going to get one millirem,
9 but we're gonna rely on institutional controls.
10 So I do see a parallel approach available to you, similar to what you used in the license
11 termination rule, where you had an option of terminating a license with no restrictions or terminating a
12 license with restrictions, but in fact the dose to the public would be the same. The difference is, on one
13 hand, you'd be counting on institutional controls to limit the dose, and in the other you wouldn't. So there's
14 an opportunity, I believe.
15 SPEAKER: Okay, so this is a combination of unrestricted and restricted.
16 SPEAKER: And it's not clear they have to be done at one time. You might set one
17 standard today and down the road work toward the restricted approaches.
18 SPEAKER: Okay. Thanks, Paul. Terry?
19 SPEAKER: I don't want to say "great minds think alike," but I was looking at the
20 combination of two and three as a alternative except of course that when you acceptable dose levels in the
21 regulations, which must be met before materials could be released and end it there, and then you could
22 address the specific issues associated with the metals release, as it has a public perception issue.
23 That material -- and we talked afterward. Sometimes when you have a glove and you try
24 to fit that glove, it doesn't fit. One size doesn't fit all; when you try to make the glove fit, it doesn't fit
25 anybody. And sometimes you have to look at the various fingers and say, well if we have these fingers, now
we have a glove. So that's my suggestion there from an alternative.
SPEAKER: So, when you say deal with it from a public perception point of view and

1 the fingers and the glove analogy, does that mean that you would look at it on a case-by-case basis
2 depending on the situation, or?
3 SPEAKER: No, I think there are a lot of alternatives set out here. As an example, you
4 have tools and machinery. They could be treated differently than hospital waste and research laboratories
5 and universities, such that there are various dose criterias based upon expected releases or expected uses of it,
6 because -- will the public get upset if a, if a wrench is cleaned and used? No, I don't think so. Will the
7 public get upset if, you know, large tons of steel are being released and put into the environment and
8 getting made into incubators, etc.? Yes, they will.
9 So, if you try and fit that glove, it's only gonna complicate the people that have to do
10 business, like the nuclear power people. I mean, they have a problem and we in the steel industry recognize
11 that, that there are issues that they have to face.
12 We also believe that the doses that you set ought to be risk-based levels. So if you're
13 going to pick a one or you're going to pick a tenth, how does that relate to the 100 millirem that you're
14 already saying is safe? To the 25 that you're already using in some circumstances? We don't want to see
15 our industry brethren encumbered by overbearing regulations when we're trying to protect our perception
16 image so that everybody ratchets its levels down to where nobody can do anything with anything. So I
17 would just like to throw those out as alternatives for the NRC to consider.
18 SPEAKER: Any comments on Terry's suggestion? Art.
19 SPEAKER: Yeah, just two thoughts. First of all, I'd sign up with the two dose-limit
20 kind of thought. I think that really does need to be explored some more -- one dose limit for materials
21 being recycled back into commerce, and perhaps another dose limit for something being sent directly to
22 disposal in a Subtitle C or D landfill.
23 The second comment is something I haven't, just I'd like to point out. And that is, I
24 haven't heard anything about harmonization with the Department of Transportation limits as far as why the
25 material is no longer regulated under NRC but may still be regulated under U.S.DOT. The DOT
surface-contaminated object standard is 0.24 beckerals per square centimeter for beta-gamma materials.
SPEAKER: So that's a potential regulatory disconnect that we should explore. Ed, did

1 you want to add onto this?

2 [Laughter.]

3 SPEAKER: No. All right. Vince?

4 MR. ADAMS: Vince Adams, DOE. This here is just, I guess, a follow-up to Gwen's

5 question again because I think it's a very important question, or even an extension of it. If you, if you

6 look at -- what is it, diamond, or the third or fourth bullets there.

7 If you, if you adopt those, and let's say the European Community adopt the second bullet,

8 which is unrestricted reuse, I guess the question is how are you gonna -- you're restricting release in the

9 United States, but you're not restricting release in a foreign country, but the foreign countries are using

10 these unrestricted releases to make products that are coming back into this country? And I think, I mean,

11 there's a big discrepancy. How do you make that consistent?

12 So if you're gonna look at 2 and 3, then you're gonna be on a different side of the

13 international community.

14 SPEAKER: Okay. So that's a following-on on Gwen's point is that, in selecting

15 alternatives, the NRC has to take a look at what the international -- in a simplistic way of expressing it --

16 international implications.

17 Any other alternatives that people want to bring up? Joelle?

18 MS. KEITH: Joelle Keith, State of Tennessee. I had a question about number 2. You

19 talk about acceptable dose levels. Do you mean you'll set a dose level and you'll give us guidance on how

20 to analyze a particular process, or are you saying the dose level will be turned into a volumetric or a

21 surface level and we'll actually be dealing with that?

22 MR. CARDILE: I'll start, and then maybe Tony and/or Steve will jump in.

23 Probably what NRC would do in a regulation would be to set -- as we've talked about a

24 couple of times -- a dose-based standard at a millirem per year. And then we would, at the same time, be

25 developing a guidance which would tie concentration levels to that dose-based standard.

SPEAKER: Tony, do you want to talk about your dedicated melt idea? Is that an alternative? IT seems like it is. Do you just want to put it on the record for us?

1 MR. LEMASTRA: Tony Lemastra, AISI -- or Tony Lemastra, himself I guess.
2 [Laughter.]
3 MR. LEMASTRA: In actuality, it's being conducted today, where you, you take known
4 radioactive or known contaminated material and through the melting process -- or you send it to a licensed
5 facility to melt -- in the melting, refining process you actually clean it up some. So it becomes one, a
6 process of decontamination.
7 But essentially because it's a, a regulated facility, where you control where the products go,
8 which kind of follows with what Frank was saying, was that you have control over it, which can help get
9 out from under some of the perception problems.
10 You know, in this case, everything's going to -- whether it's a steel melter or an
11 aluminum or a copper or nickel, or anything, whatever it happens to be -- it's going to be controlled.
12 Secondly, you, you have control over the by-products -- the slags and the dust and the fume that's formed.
13 And you know, as a regulator, you have control over where those products are going. So it's -- you know,
14 in a sense, like I said, we're, we're going it today with the shielding blocks; we're doing it with, I guess the
15 B-25 disposal boxes.
16 I'm not sure I could add a whole lot more to it other than look at, at the cleaning
17 technology that you can get out of it.
18 SPEAKER: Okay, thank you. Let me ask the NRC staff whether they have any
19 questions on that or any of the other things that were brought up. Bob? No? Steve?
20 MR. KLEMENTOWICZ: Steve Klementowicz. I had a comment on the two-tiered
21 approach about one level for unrestricted clearance and another level for disposal.
22 We hear that; however, we would still have to consider that there's some usable material,
23 even though it goes into a landfill and gets covered, you know, by tons of stuff each day, there's still, we
24 would still have to consider some evaluation, whether or not someone would go in and salvage that material,
25 or that it would never reach the disposal facility. That has occurred.
You know, stuff that supposedly goes to the landfill -- I think it was in the news some
years ago that all these contaminated tools and equipment were excavated from some disposal sites. So the

1 NRC would still be obliged to evaluate the likelihood of someone taking the material and/or using it. Just
2 to let you know, it's not a straightforward -- dispose of it, it's gone forever.
3 SPEAKER: Okay. Thanks, Steve. Valerie.
4 MS. McNAIR: I'm Valerie McNair from Manufacturing Sciences Corporation in
5 Oakridge, Tennessee. We decontaminate and we recycle metals. We do support the responsible and
6 regulated release of the metals. I do believe that there are some specific cases, for instance, where we've
7 been talking about the, the specific melter set aside for the radioactive materials or metals. What I do
8 believe is that is for small volumes of metals, and that's for some specific cases.
9 Perhaps it's not the long-term solution for large volumes of metals. Some of the cases that
10 I have been hearing are, for instance, for shield blocks. I've also been hearing, for instance, for drums or
11 for boxes. Well, at MSC we have tried those options.
12 One of the options that we have put considerable effort into is to turn it into drums to go
13 back into the DOE facilities. Those drums, we've put in manufacturing processes -- we had an independent
14 melter for that. And it was a melter there at our facility. The problem with that is when you make those
15 drums, you don't have the volumes that are made of drums in industry. So you're competing from a cost
16 basis of people that make thousands and thousands of drums, and here you're making tens or hundreds to go
17 back into restricted markets. So it's very difficult to compete from a cost basis.
18 Also, you're looking at, you're working in a licensed facility. So there's a difference in
19 cost working in a licensed facility versus competing with the outside market. so you are looking at a cost
20 difference between metals that are going into a restricted market and those are unrestricted release. And
21 you have to consider the economics of the issue before you can consider these alternatives.
22 SPEAKER: Okay. Thanks, Valerie. And I think, as with Gwen's four questions, these
23 points should be brought up, these questions should be brought up again when we're evaluating all these
24 alternatives against each other.
25 I think we do need to, to wrap up soon. Let's go to, to Paul, and then we'll hear from
Bob Mack.
MR. GENOA: Paul Genoa, NEI. And just a follow-up, Valerie, because I know the

1 process that you went through and I think it was an excellent effort to do that. But I would caution the
2 NRC -- you are required to do a cost-benefit analysis under NEPA and so forth, and that's a challenge and
3 it's gotta be done. But it's really inappropriate for regulators to essentially establish what the industry or
4 the market will or won't do.
5 What we just heard was that at this point in time, with disposal prices at DOE being X
6 and the cost of manufacturing boxes being Y, we couldn't make it work. That doesn't mean it wouldn't
7 work tomorrow or it might not work in the future. So, I mean, you have to be a little careful.
8 Fundamentally, you have to set standards that are health-based and protect the public and then allow the
9 market to work within those constraints to see whether things make sense. And they may not, you know.
10 But you can preclude those out of hand, if you try to make those determinations on your own. That's my
11 only caution.
12 SPEAKER: Okay. Bob? Thanks, Paul.
13 MR. MACK: Bob Mack, NRC. Chip, you may not appreciate this because it might not
14 wrap things up for you --
15 [Laughter.]
16 MR. MACK: -- but there is a thought that one form of the rule could be a pilot kind
17 of project or a pilot rule. Try, say, limited kinds of materials or try one set of, kind of licensees. You
18 could cut that several different ways, but the, but the rule, a rule going out doesn't necessarily have to go
19 across all licensees or across all materials. Does that stimulate anything about alternatives?
20 SPEAKER: No. I think that's a legitimate suggestion. Do we have any comments on
21 the possibility of a pilot, small-scale -- whatever you want to term this? Norman, you have any thoughts on
22 that? Anybody want to comment on the feasibility, the wisdom of doing that?
23 [No Response.]
24 SPEAKER: All right. Well, it's there as an alternative of, identified in the meeting to
25 be explored.
I think now we're going to go onto the next topic, which is -- I guess Tony Huffert, is
that right? On assurance issues.

1 SPEAKER: If you don't mind, we're just gonna keep rolling through the meeting. Some
2 people are anxious to get to a certain afternoon activity in Atlanta associate with sports events. So we're
3 gonna, we might end a little bit early, but we're gonna keep, keep going through the discussion and give
4 Tony a little bit of an opportunity to talk about how materials, control of materials would be assured under
5 any of the scenarios we've talked about.
6 MR. HUFFERT: Thank you, Barbara. This is really a follow-up to the session we just
7 had. It's got a slightly different spin. If I could ask us to think about the development of a draft reg.
8 guide, if we were to come out with a rule, how would it look? What kind of controls you'd like to see in
9 there.
10 Session 5: how should the control of materials be assured under the various alternatives?
11 This topic is discussed in Section 2 and 3 of the issues paper. And the main topics are implementation
12 and restrictions.
13 As we discussed earlier today, existing NRC regulations require licensees to make surveys
14 of solid material to evaluate the potential rad hazard that could be present. And as part of this rad safety
15 program at licensed facilities to develop procedures for controlling solid materials, which includes radiation
16 monitoring procedures, to evaluate any solid materials before they could be released.
17 Presently there are some issues with existing survey programs at licensed facilities. Not
18 all of them use the same survey instruments and procedures to monitor the solid materials, which in turn
19 leads to variations in the detection sensitivity and equipment used. This in turn can lead to different levels
20 of control of solid materials, which could results in non-informed levels of protection.
21 Another issue is that existing guidance on conducting surveys is really geared toward the
22 release of solid material with surface contamination only, not volumetric contamination. For example, we've
23 been talking about regulatory guide 1.86 and field cycle 8323.
24 Neurosis and physical limitations from measuring volumetric contamination, because it is
25 difficult to measure radioactivity that is contained in a solid object using typical handheld survey
instruments that are used at most facilities. So an overall consideration we have before us in controlling
solid materials with volumetric contamination is how to detect or measure radioactivity in the material itself

1 and then compare the results, the results to a predetermined level.

2 It's likely that the survey method that is chosen for controlling solid materials will be

3 dependent on the alternative chosen for regulating these materials. Currently the NRC is considering a

4 range of alternatives, which in turn requires the staff to technically evaluate a variety of survey approaches

5 and procedures because the alternative chosen determines which survey method should be used to control the

6 solid material and release. It follows that if we have a dose criterion that is chosen very low or zero above

7 background radiation levels, very sensitive survey methods and equipment would be needed and there are

8 associated implementation costs and procedures that would have to be developed.

9 Another consideration in controlling the solid material release is restricting the release to

10 only certain authorized uses, which we've just discussed -- for example, the future use of the material

11 restricted to only certain industrial purposes or processes where the potential for public would be relatively

12 small.

13 So I'd like to open it up. For restricted use, what other controls are needed? Some of

14 the options we've already discussed here. And let's also consider one or two more. The public review or

15 involvement process, we have not discussed yet.

16 As has been noted before, the license termination rule didn't have a restricted release for

17 sites. Would it be appropriate under this effort that the NRC, should we consider having certain local

18 groups involved in reviewing what a licensee does?

19 Should there be a more global group established to review and get involved in our

20 process?

21 Should there be licensing of the first-user in a processor?

22 Would this be beneficial for radionuclides only with a short half-life?

23 Would this permit adequate time for the radioactive decay to reduce the amount of

24 contamination of material?

25 What would be the appropriate length of time for restricting the solid materials?

Should it be tied to the lifetime of the structure that's contained, that's contained in the control materials, or should it be directly related to the half-life of the material?

1 And what other options should be considered here?

2 So I'd like to open it up. I know Bob Mack suggesting a pilot rule limited to licensee

3 type and material type. I don't know if we want to pick up there or move on to something else.

4 SPEAKER: Okay. Couple of comments. Should we start with you Noelle?

5 MS. ROGERS: Something just came to mind -- Norma Rogers, Allied Signal -- that I

6 heard of. I'm not a person in the metals industry, so bear with me. The DUF-6 that the DOE has a large

7 amount of, and potential clean-up of that situation -- I was at the waste conference in Tucson, and one

8 proposal was research to use the uranium metal that could be a by-product of cleaning all that up, in

9 various things other than just shielding blocks. And one of the statements that was made was a sacrificial

10 endnote in the aluminum manufacturing. And so bear with me; I'm totally ignorant of the metal part.

11 But the concern that I have is, is this would be perhaps a restricted stuff, as far as

12 uranium metal, but what amounts of it would go into the uranium, I mean the aluminum and the dose to

13 the public -- that seems like a whole different situation. I mean, if it, I don't know about aluminum

14 production, but how much carbon -- I guess they use carbon in those now -- how much of the carbon is in

15 all of the aluminum and what's the dose if it were uranium instead of carbon?

16 SPEAKER: Okay, it sounds like you're talking about a specific scenario or idea. If

17 anybody has any -- particularly from the metals industry, would like to elaborate on or clarify the concept

18 itself, that would be helpful. And we want to make sure we get at these questions of continuing monitoring

19 and dealing with the controls that are maintained under some of the alternative restricted-use scenarios,

20 other scenarios. And what?

21 MS. ROGERS: What I mean was that's restricted versus non-restricted --

22 SPEAKER: She's saying that's restricted versus non-restricted. Anybody have any

23 thoughts on that?

24 MR. LEMASTRA: Tony Lemastra himself.

25 [Laughter.]

MR. LEMASTRA: My background is not in the aluminum industry, and from what I

understand of, of the process, where the sacrificial anode would be used -- I don't think you have a lot of

1 cryolate in that process, but I could be wrong. But if you do use the cryolate, you're gonna dissolve the
2 uranium into the aluminum. You may end up -- again, I don't know the chemistry involved either in
3 what's happening, if you would use the aluminum or, use the uranium instead of the aluminum. But, you
4 would obviously have to get some good aluminum metallurgists.
5 SPEAKER: Maybe the thing to do here is to try to -- rather than to explore that
6 specific example, which may or may not have the expertise for, take it back to a more generalized question:
7 Is that the kind of approach that, that could be useful and how would you maintain controls over it?
8 That's the focus of this discussion.
9 MS. ROGERS: That's the question.
10 SPEAKER: Yeah.
11 SPEAKER: For example, I've heard the use of labeling --
12 SPEAKER: Labeling.
13 SPEAKER: -- stamping, licensing. Are these, are these options that are open?
14 SPEAKER: Reasonable options? Pros and cons of those? Somebody else had something
15 over here. Art?
16 MR. PALMER: Art Palmer, ATJ. Not so much on trying to trace anodes down. But I
17 did want to delve into some of these survey methods and suggest a couple points. If the, if the box is drawn
18 broadly around materials that have been in radioactive materials areas or radiologically controlled areas as
19 needing to be free-released or surveyed from restricted release, then I think it would be prudent to allow
20 process knowledge as an alternative for one method of determining whether or not an item has a
21 radiological history or something like that. Include that in the universe of choices for the licensee to use.
22 Hold them accountable for performance, but please give them that option.
23 The second thing would be a suggestion on statistical sampling programs for homogeneous
24 materials such as low-activity resins, where you could perhaps pull samples and then justify that it's a
25 representative sample for release. Just a couple thoughts.
SPEAKER: Good. Other ideas?
MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I had jotted a list down for survey

1 methods and for consideration. And you've given us some comments. The need for a survey -- should it be
2 a 100 percent survey of the material? Should it be a representative sample of the material? Should you
3 use engineering judgment? Or should it be a statistical sampling? So those are some options that the NRC
4 would need to consider through any of this. So any -- we've heard some feedback. What about the 100
5 percent survey or the statistical sampling survey? It's consistent with the decommissioning criteria.
6 SPEAKER: Bob?
7 MR. MACK: Bob Mack, NRC. I'd like to add one more to that that's certainly on our
8 minds. And that is, over what volume or surface area is appropriate to average? Certainly Reg. Guide
9 1.86 has a surface area that you can average over. I'd like to hear some input on that.
10 SPEAKER: Comments? 100 percent survey?
11 [Laughter.]
12 SPEAKER: Any comments on the statistical sampling? Bounds on that? Okay, it
13 sounds like there's a good menu of things for the NRC to evaluate. They'd appreciate more of your input
14 on it, I'm sure. Either we go through our discussion, or in writing perhaps.
15 MR. PALMER: Art Palmer, ATG. Just on the area or volume to average over, I've
16 seen this get progressively more ridiculous until we're looking at practically microscopic levels. You know,
17 it's almost to the micro-climate studies that some meteorologists do.
18 In the grand scheme of things, worrying about surface contamination on an object that is
19 a tenth of an inch thick, that's essentially uniformly distributed at that point. Yet I've seen a lot of effort
20 expended on determining whether or not that can, you know -- how small a unit I guess is my concern. I
21 have seen that get very, very ridiculous.
22 SPEAKER: Other comments? Any other types of controls that should be considered?
23 Paul?
24 MR. GENOA: Paul Genoa, NEI. I would just answer Steve's challenge on 100 percent
25 survey and representative sampling and statistics. And I think all of those -- I think as Art put out --
licensees are going to need to have a whole arsenal of tools to make evaluations of a broad range of
materials.

1 If you're talking about a nice, uniform surface, like the surface of a table, a hundred
2 percent makes sense and is achievable. If you're talking about a 40-acre effluent discharge pond of
3 sediment, you're not gonna do it, so you're gonna need to use representative sampling in that case. And the
4 question is, what is representative and what is acceptable. And I think some work needs to be done there.
5 But I think you're probably not gonna find a one-size-fits-all for that, and rather, you're gonna need
6 appropriate survey techniques for appropriate types of material. And they should cover volumetric, as well
7 as surface, contaminated materials.
8 SPEAKER: Different points of view? Other points of view on that?
9 Have we reached the end of the day and the end of our, tail-end of the energy curve?
10 SPEAKER: How do you feel about the Atlanta Braves' chance tonight?
11 [Laughter.]
12 SPEAKER: Okay. Anything else you'd like to pose?
13 SPEAKER: Not at this time.
14 SPEAKER: Okay. Good. Well, we appreciate your attention today. We're gonna, as
15 we said before, take the flip-chart notes and develop them into some meeting highlights to come out right
16 after this meeting. So as you take a walk around, if you see any problems with them, inaccuracies, please
17 tell us. We want to make corrections now.
18 We're gonna get started again in the morning, 8:30. We'll be in here. You can leave
19 paper in here; do not leave anything valuable, I would recommend. And again, there's dinner choices in
20 the area that are pretty decent. They'll give you transportation. Ask the front desk. The folks want to try
21 to hook up in groups. We'll let you do that informally. And we'll see you first thing in the morning.
22 Coffee'll be here at eight.
23 [Whereupon, the workshop was recessed, to reconvene at 8:30 a.m., on Wednesday, October
24 6, 1999.]
25