# OFFICIAL TRANSCRIPT OF PROCEEDINGS

# UNITED STATES OF AMERICA

# NUCLEAR REGULATORY COMMISSION

**Title:** RELEASE OF RADIOACTIVE MATERIALS WORKSHOP

**Case No.:**

**Work Order No.:** ASB-300-945

**LOCATION:** Atlanta, GA

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 ***

4 RELEASE OF RADIOACTIVE MATERIAL WORKSHOP

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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

12 notice, at 8:00 a.m.

13 PARTICIPANTS:

14 DONALD COOL, NRC

15 CHIP CAMERON, NRC

16 PATRICIA HOLAHAN, NRC

17 BARBARA STINSON, Meridian Institute

18 MIKE LESNIK, Meridian Institute

19 SARAH WHALEN, Meridian Institute

20 BOB NELSON, NRC

21 RAY TURNER, David Joseph Company

22 JIM TURNER, Ameristeel Corporation

23 FRANK CARDILE, NRC

24 TONY HUFFERT, NRC

25 ART PALMER, ATG Incorporated

1 PARTICIPANTS: [Continued]

2 BOB MACK, Senior Health Physicist

3 STEVE KLEMENTOWICZ, NRC

4 IVY PORPETAGE, ICF Consulting

5 JOHN COLLIER, ICF Consulting

6 JOELLE KEY, Tennessee Division of Radiological

7 Health

8 JIM HARDIMAN, Georgia Department of Natural

9 Resources

10 TOM HILL, Georgia Department of Natural Resources

11 RANDY CLARK, Westinghouse Savannah River Company

12 LARRY HANES, Duke Power Company

13 VAL LOISEL, Armor

14 ED REITLER, Westinghouse Electric Company

15 JOHN KARNAK, EPA

16 ALAN CURE, Nuclear Fuel Services

17 HENRY PORTER, South Carolina Department of Health

18 and Environmental Control

19 NORMA ROGERS, Allied Signal

20 STUART TREBY, NRC

21 TERRY SIVIK, LTV Steel Company

22 TONY LEMASTRA, American Iron and Steel Institute

23 VINCE ADAMS, DOE

24 PAUL GENOA, NEI

25 JAY HINSON, NRC, Region II

1 PARTICIPANTS: [Continued]

2 KENNETH McCRACKEN, Southern Nuclear Operating
3 Company
4 BILL RANES, Tennessee Valley Authority
5 JOHN ETHERIDGE, Entergy Services
6 GWENDOLYN BOWER, OMNA
7 KEN KALMAN, Division of Waste Management
8 ROGER HANNAH, NRC
9 BILL HOUSE, Chem Nuclear Systems
10 DALE RANDALL, State of Maine Office of Nuclear
11 Safety
12 RICHARD BUTTON, EPA
13 BOB ADCOCK, Manufacturing Sciences Corporation
14 VALERIE McNAIR, Manufacturing Sciences corporation
15 TOM COMBS, NRC
16 MIKE MATEA, Institute of Scrap Recycling
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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
4 of you to our second public meeting designed to discuss the
5 issues and approaches that the Nuclear Regulatory Commission
6 and the Federal Government as a whole has available to it to
7 properly control and deal with solid materials. For those
8 of you who I have not yet had an opportunity to meet, I'm
9 Dr. Donald Cool, and I'm the Director of the Division of
10 Industrial and Medical Nuclear Safety at the Nuclear
11 Regulatory Commission.

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

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

23 On the other hand, there are many materials in our
24 environment which contain radioactivity as they exist in
25 nature, or as a result of the various activities of man. A

1 lot of those go well outside the boundaries of traditional
2 licensed activities that many of us are more familiar with.
3 In this age of increasing environmental
4 consciousness, providing for public health and safety has
5 been given a whole new meaning and complexity by the task of
6 how to specify how much of any material can be allowed in
7 any other material as we seek to conserve resources. There
8 are many types of facilities that possess potentially
9 valuable materials which may have small quantities of
10 radioactivity still associated with them. At present,
11 licensees determine whether such material can be released
12 and returned to the general market environment by applying
13 guidelines related to the surface activity that was
14 developed more than 30 years ago and been implied in various
15 forms and activities. In other cases, it's simply a matter
16 of whether or not any activity can be detected that is
17 applied to a particular operation.
18 The result has been a continuing redefinition and
19 debate over what should be considered as the appropriate
20 levels. As we learn more about our environment, we learn
21 more about the presence of different kinds of materials, and
22 we improve our ability to detect and measure various kinds
23 of materials. Thus we are seeking to engage in a national
24 dialogue on the issues associated with controlling solid
25 material in order to answer the question of whether and

1 under what conditions such material should be disposed of in
2 an appropriately licensed facility or can be safely reused
3 or recycled, either within the industry or outside of the
4 industry.
5 I believe we share a common purpose, that of
6 applying appropriate controls to material on the basis of
7 the risks that they pose to us, both as individuals and as a
8 global society. This meeting, other meetings that will get
9 to be held in Washington, D.C., and Chicago, and other
10 opportunities for interaction are all part of an enhanced
11 participatory rulemaking process that the NRC has engaged in
12 in order to define the appropriate regulatory vehicles for
13 establishing such a national standard.
14 Facilitated discussions here are going to be
15 transcribed so that we can effectively capture your thoughts
16 and ideas, and I'd like to encourage you to be open with
17 those ideas, and the reasons for your positions. The
18 rationale and the thought process behind a given statement
19 is as important to us as the position itself.
20 While this meeting certainly does represent an
21 opportunity to hear from the NRC staff, and we will
22 certainly be glad to answer questions and interact with you,
23 it's also an opportunity to explore with each other the wide
24 varieties of expertise and backgrounds that are available in
25 this room in order to look at the various options, maybe

1 develop some new options, and the pros and cons of how to
2 deal with them.
3 There are a variety of background documents, an
4 issues paper, a variety of things which are available out in
5 the foyer. They can serve as a starting point for our
6 discussions. That issues paper does not represent the end
7 of all options. In fact, I'm quite sure that we will
8 probably generate some others as we go through the
9 discussions over the next couple days. So please feel free
10 to add your thoughts, your modifications, or whole new
11 approaches, as we go through these discussions.
12 Today's meeting and continuing on in tomorrow is
13 going to be facilitated by a team of facilitators which
14 includes Chip Cameron, our special counsel for public
15 liaison, and Mike Lesnik and Barbara Stinson of the Meridian
16 Institute. I hope that you will work with us and them so
17 that this can be a very meaningful opportunity to improve
18 what we know and to help us define how to move forward in
19 this critical area.
20 Again, let me welcome you here today. I look
21 forward to these discussions. And at this time I'm going to
22 turn it over to Barbara Stinson of the Meridian Institute.
23 Barbara?
24 MS. STINSON: Welcome again. My name is Barbara
25 Stinson. I'm with Meridian Institute, as Don said, and I'll

1 give you just a little bit of background on Meridian.
2 We're a nonprofit mediation and facilitation
3 organization, and Mike and I have worked together for many
4 years on these issues and other similar environmental and
5 public policy issues, usually in multiparty settings such as
6 this, sometimes in a dialogue format, which we hope to
7 create today, sometimes in one-on-one negotiations, et
8 cetera. And I'll tell you more about our role, et cetera,
9 later on.
10 But I wanted to welcome everyone. Some have
11 traveled a distance to be here with us today, and we
12 certainly appreciate that. Let me just say that Chip and
13 Mike and I are emcees for today, and we're here to assist
14 you in any way that we can, so let us know whatever you may
15 need, and let me start by suggesting that everyone should
16 have in front of them the latest agenda, which is out on the
17 table, and a copy of the slides, which various NRC staff
18 will go through throughout the course of the two-day
19 meeting. So be sure you pick up a copy of those. There's
20 also outside a number of NRC documents, regulatory
21 materials, et cetera, as well as a new staff requirements
22 memo issued September 20.
23 There's also -- perhaps some of you had a chance
24 to sign in as you arrived. If you did not, we're going to
25 ask you to do that, and that's not only to have a sense of

1 who's here, but also if you'd like to receive the follow-on
2 materials to the meeting, we'll know how to get them to you.
3 As Don said, this is the second in a series of
4 workshops. There are four. We started in San Francisco
5 September 15 and 16. We go on to Washington, D.C., November
6 1 and 2. We've now set dates in Chicago of December 7 and
7 8. So for some of you, we'll see your faces at every
8 meeting, and for some of you, you'll probably be talking to
9 colleagues who may be attending other meetings. Let us know
10 if we can help out with that communication. You can
11 certainly help us out by letting us know who you know of in
12 the other regions who might be interested in attending. And
13 you'll hear us say that again in the course of this meeting.
14 The purpose of this meeting, as Don clearly
15 articulated, I think, is to try to get more understanding of
16 the area of control of solid materials. It's also to
17 explore the issues and concerns around potential control
18 approaches. The NRC has clearly stated as possible, the
19 staff has stated that they are interested in fully
20 considering all the various regulatory approaches, and we're
21 really going to try to draw you out in the next two days for
22 a thorough discussion of various alternatives, the impacts
23 of those alternatives, new alternatives, what they would
24 really mean for your businesses, organizations, and
25 regulatory situations, so that the staff can take a fully

1 informed recommendation back up to the Commissioners in the
2 spring of 2000.
3 As I introduce Meridian, I let you know what we
4 generally do in situations like this. For this particular
5 set of meetings and this particular set of issues we've been
6 involved in a convening process where we've tried to talk to
7 a variety of interest groups and parties regarding their
8 potential participation in this process. That convening
9 process involves some meetings, some face-to-face
10 discussions, some conference calls, some just one-on-one
11 conversations, and I'll take this moment to tell you that
12 there are a number of people who found that these issues
13 were very interesting and compelling but new, entirely new
14 to them, or somewhat new to the impacts that they might have
15 on their particular area of expertise, and were therefore
16 working hard to get up to speed on some of those issues and
17 not able to participate in these meetings or facing other
18 priorities. So there's a range of folks who are not here at
19 this meeting for that reason.
20 There's also a range of individuals who are very
21 concerned about precedents that have already been set
22 regarding this process, and, you know, decisions that might
23 be made, and they have elected to not participate in these
24 meetings, and just to say up front, public interests and
25 environmental representatives are engaged in a boycott of

1 this process, and I'm sure many or most of you know that.
2 Hopefully we'll see some folks during the course of the two
3 days, and we can begin to engage in multiparty discussion or
4 discussions from various perspectives.
5 We're also, part of our role of course is to
6 facilitate today, and what we'll try to do is keep the
7 discussions on target in terms of the topics that we're
8 addressing, but we'll also try to stay on schedule, so that
9 we get through all of these issues. So you'll see us trying
10 to do some timekeeping. We may have to interrupt various
11 portions of your comments or whatever. Please give us that
12 license. But the hope is that we can really create an
13 environment today and tomorrow that will be even though in
14 this kind of unusual setting a dialogue where folks can ask
15 questions of the NRC staff. You may want more technical
16 information. Staff may want to refer to each other, and may
17 have questions back to you. So we really encourage as much
18 back-and-forth as possible.
19 The overall goal, of course, for today and
20 tomorrow is to try to get a sense of the fullest array of
21 concerns from the broadest spectrum of individuals as
22 possible, so we really encourage everyone to participate.
23 There's a number of NRC staff here. The lead for
24 this particular effort rests with Don Cool and Patricia
25 Holahan. And we'll let everybody introduce themselves in a

1 moment and ask you to mention your name and affiliation and
2 perhaps, you know, one sentence about the impact that this
3 particular discussion might have in or the experience that
4 you might have with these particular issues in your area of
5 work.
6 Let me just say that this is one opportunity for
7 input into this process and into the decision making that
8 will proceed from these meetings. You may submit written
9 comments. You may of course take advantage of one-on-one
10 conversations during the course of the meetings with NRC
11 staff, and you may also wish to talk with folks after the
12 meeting. There is a transcription being made of this
13 meeting, and the transcript actually from the San Francisco
14 meeting is already available -- the Web site address is out
15 on the table, there are meeting highlights from that
16 meeting, and we will produce both of those for this meeting
17 as well.
18 There's actually three pieces that come out of it,
19 the transcript, we produce some highlights that just capture
20 what goes up on the flip chart notes, and send that out to
21 everyone immediately after the meeting. That gives you a
22 chance to just reflect on some of the topics that were
23 covered, et cetera. It's not as comprehensive as a full
24 meeting summary, which Sarah Whalen is there on the computer
25 developing as we speak today. So that's some of the

1 follow-on materials that are available, and there will
2 probably be others as well. So again do sign in if you want
3 to receive all that.
4 Why don't we take a moment for a round of
5 introductions, and give everybody a chance to get to know
6 who's in the room. We'll just go back and forth along the
7 rows if we can and start with Bob.
8 MR. NELSON: Bob Nelson, chief of the Special
9 Projects Section, Division of Waste Management, NRC. And
10 it's my section that's providing technical support to this
11 process.
12 MR. CARDILE: I'm Frank Cardile with the Nuclear
13 Regulatory Commission. I'm in Don Cool and Patricia
14 Holahan's division, working on this effort.
15 MR. HUFFERT: I'm Tony Huffert. I work in the
16 Division of Waste Management. I work with Bob Nelson on the
17 technical basis.
18 MS. HOLAHAN: Trish Holahan. I'm in the Division
19 of Industrial and Medical Nuclear Safety. I'm the section
20 chief in the Rulemaking and Guidance Branch. We'll be
21 looking forward to all the input for providing feedback to
22 the Commission in March of 2000.
23 MR. LESNIK: Mike Lesnik. I'm part of the
24 facilitation team from Meridian Institute.
25 MR. CAMERON: Chip Cameron, part of the

1 facilitation team from the NRC.

2 MS. WHALEN: Sarah Whalen, Meridian, notetaker.

3 MR. CAMERON: All right.

4 MR. PALMER: Art Palmer, ATG Incorporated, and

5 I've licensed and permitted a number of volumetric release

6 systems.

7 MR. CAMERON: Did these guys go yet? No. These

8 did. All right.

9 MR. MACK: Good morning, Chip. I'm Bob Mack. I'm

10 senior health physicist and technical lead for most of the

11 work on supporting this rulemaking.

12 MR. KLEMENTOWICZ: I'm Steve Klementowicz. I work

13 in the Office of Nuclear Reactor Regulation. I'm a health

14 physicist.

15 MS. PORPETAGE: I'm Ivy Porpetage. I'm with ICF

16 Consulting, and we're supporting NRC in public comment

17 summaries and public comment tracking.

18 MR. COLLIER: John Collier, also ICF Consulting,

19 providing analytical support to NRC.

20 MS. KEY: I'm Joelle Key with the Tennessee

21 Division of Radiological Health.

22 MR. HARDIMAN: Jim Hardiman. I'm with the

23 Environmental Radiation Program with the Georgia Department

24 of Natural Resources, Environmental Protection Division.

25 MR. HILL: I'm Tom Hill, with the Georgia

1 Department of Natural Resources, Radioactive Materials
2 Program, and we do the licensing and inspection of the users
3 of radioactive material.
4 MR. CLARK: I'm Randy Clark. I'm with
5 Westinghouse Savannah River Company, and we're involved in
6 release of assets to the public, most of which have no
7 radiological history.
8 MR. HANES: Larry Hanes, Duke Power Company. I'm
9 the corporate radiation protection manager, and I'm a
10 certified health physicist.
11 MR. LOISEL: I'm Val Loisel. I represent Armor,
12 the trade association of metal recyclers. What is unique
13 about this organization is that the majority of the
14 processor companies who would be implementing the activities
15 resulting from the rule or actually do perform processing
16 today are members of this association.
17 MS. STINSON: Thank you.
18 MR. REITLER: Ed Reitler, certified health
19 physicist at Westinghouse Electric Company, Columbia, South
20 Carolina. We operate a low enriched uranium fuel
21 fabrication facility.
22 MR. KARNAK: I'm John Karnak. I'm at
23 Environmental Protection Agency, and I'm the director of the
24 Center for Cleanup and Reuse. I've been involved in this
25 subject for a number of years now, along with problems

1 associated with sealed radioactive sources that end up lost
2 in commercial industry, as well as looking at issues
3 associated with contaminated metal and products coming into
4 the United States, imported into the United States.
5 MR. CURE: My name is Alan Cure. I'm an
6 operational health physicist with Nuclear Fuel Services in
7 Erwin, Tennessee. We too are a uranium fuel fabrication
8 facility, high enriched fabrication facility primarily. I'm
9 here to find out more about solid waste disposal.
10 MR. CAMERON: Thank you. Henry.
11 MR. PORTER: I'm Henry Porter. I'm with the State
12 of South Carolina. Work in the South Carolina Department of
13 Health and Environmental Control in the Division of
14 Radioactive Waste Management.
15 MS. ROGERS: I'm Norma Rogers with Allied Signal.
16 I am very interested in this, because I have a lot of solid
17 waste. Allied Signal in Metropolis, Illinois, is our only
18 UF6 converter.
19 MR. CAMERON: Thank you, Norma.
20 MR. TREBY: Good morning. My name is Stuart
21 Treby. I'm assistant general counsel of the Nuclear
22 Regulatory Commission. I had up a group of attorneys who
23 provide legal support services for rulemaking activities.
24 MR. CAMERON: Thank you, Stu.
25 Let's go over to the Turner boys -- the Turner

1 Gang.

2 [Laughter.]

3 MR. RAY TURNER: I'm Ray Turner. One of us is
4 good-lookin'; the other one's tall.

5 I'm with David Joseph Company. We're the world's
6 oldest and leading recycler of scrap metals.

7 MR. JIM TURNER: One of us is older, too.

8 I'm Jim Turner. I'm with Ameristeel Corporation.
9 I represent the Steel Manufacturers Association, which is a
10 trade association for minimill steel producers. We produce
11 steel from scrap. And that's what we're concerned with, I
12 guess the perceived or real contamination of our product or
13 coproducts or wastes as a result of this rulemaking, and
14 public perception.

15 MR. SIVIK: I'm Terry Sivik. I'm manager of
16 safety and health for LTV Steel Company. I'm here
17 representing the American Iron and Steel Institute, and
18 together between AISI and SMA, we represent 100 percent of
19 the domestic steel production in the United States.

20 MR. LEMASTRA: I'm Tony Lemastra. I'm a certified
21 health physicist consulting with the American Iron and Steel
22 Institute.

23 MR. ADAMS: I'm Vince Adams, U.S. Department of
24 Energy, responsible for recycling metals throughout the DOE
25 complex.

1 MR. CAMERON: Thank you, Vince.

2 MR. GENOA: Good morning. My name's Paul Genoa.
3 I'm a senior project manager for the Nuclear Energy
4 Institute. NEI is a Washington-based policy organization
5 that represents over 280 companies worldwide that use
6 nuclear technology to provide benefits, and of course in the
7 course of doing that every day, they release materials in
8 one form or another, and are looking for consistent criteria
9 to do so.

10 MR. HINSON: I'm Jay Hinson with the NRC here in
11 Region II. I'm a senior HP. I do materials licensing and
12 inspection.

13 MR. McCRACKEN: I'm Kenneth McCracken, manager of
14 regulatory engineering and environmental services, Southern
15 Nuclear Operating Company.

16 MR. RANES: I'm Bill Ranes with TVA. We operate
17 five commercial nuclear power units, and deal every day with
18 the issues of moving equipment and materials in and out of
19 our facilities. And so a national standard that provides
20 uniformity and consistency in that area is very important to
21 us.

22 MR. CAMERON: Thanks, Bill.

23 MR. ETHERIDGE: Good morning. I'm John Etheridge.
24 I'm a senior staff coordinator with Entergy Services, which
25 is a subsidiary of Entergy Corporation, a major power

1 producer in the United States. I'm also a member of the NEI
2 Executive Steering Committee addressing this issue and very
3 interested in how we can achieve a reasonable standard for
4 the release of solid material.
5 MR. CAMERON: Thanks, John.
6 MS. BOWER: Hi. I'm Gwendolyn Bower. I'm
7 representing the U.S. Department of State. I'm in the
8 Office of Multilateral Nuclear Affairs, and deal primarily
9 with the International Atomic Energy Agency.
10 MR. CAMERON: Thank you.
11 MR. KALMAN: Ken Kalman, NRC Division of Waste
12 Management. I'm the technical manager of NRC's contract
13 with Meridian.
14 MR. HANNAH: I'm Roger Hannah, NRC Office of
15 Public Affairs here in Region II.
16 MR. HOUSE: I'm Bill House with Chem Nuclear
17 Systems, a low-level waste management company, and at least
18 for the next few months I'm still an employee of Waste
19 Management, Incorporated, which has subtitle C and subtitle
20 D sites, and I'm here since we're concerned about where
21 these materials may go or may not go.
22 MR. CAMERON: Thanks a lot, Bill.
23 MR. RANDALL: I'm Dale Randall. I'm with the
24 State of Maine Office of Nuclear Safety, and I'm a State
25 inspector at a decommissioning nuclear powerplant.

1 MR. BUTTON: I'm Richard Button. I'm a health
2 physicist with the EPA here in Atlanta, Georgia.
3 MR. CAMERON: Thanks, Richard.
4 MR. ADCOCK: I'm Bob Adcock, radiation safety
5 officer for Manufacturing Sciences Corporation, and we
6 recycle metals.
7 MS. McNAIR: I'm Valerie McNair. I'm also with
8 Manufacturing Sciences Corporation in Oak Ridge.
9 MR. CAMERON: All right. Thank you.
10 MR. COMBS: I'm Tom Combs. I'm with the NRC's
11 Office of Congressional Affairs, and I'm the liaison with
12 Congress on this subject.
13 MR. CAMERON: All right.
14 MS. STINSON: Great. Thank you very much for your
15 introductions, and thank you for being here.
16 We're going to turn now just to a few ground rules
17 and talk over the agenda for our meeting, and let me just
18 kind of build on what I said earlier regarding Meridian
19 Institute. Our role at this meeting of course is to try to
20 ensure that discussions, diverse discussions and
21 perspectives do take place.
22 We have an unusual setup for this meeting. There
23 are three of us involved in the facilitation team, that we
24 call it. Chip Cameron is special counsel to the liaison, as
25 he said, and he is serving as internal facilitator with the

1 NRC, and Mike Lesnik and I have been working -- we've all
2 been working with many of you and many others regarding the
3 structure of these meetings and design of the discussions.
4 We'll ask that for these meetings, as I said
5 before, you give us the opportunity to direct the
6 discussions, et cetera, as necessary, so we meet all of our
7 goals, but also that you respect each other's time in the
8 course of discussion, and do that by both keeping your
9 remarks to the point and also not interrupting others, of
10 course.
11 We will ask that you use a microphone for every
12 comment that you make, and that you start your comments by
13 stating your name and affiliation. We'll get into a rhythm
14 of that so it will probably be pretty easy, but we may have
15 to remind you, and that's just so that the transcription
16 comes out accurately and you're not attributed to somebody
17 else's comments.
18 In terms of part of the flow of today's
19 discussion, we'll be starting each session with a
20 presentation from NRC staff. These are designed to be
21 brief, to give you a chunk of information at the outset of
22 the discussion, but also to hopefully pose some questions
23 that will lead towards further exploration of particular
24 issues. Bring up whatever associated issues that you'd like
25 to in those sessions, but we'll quickly turn from those

1 presentations to questions of clarification and then a
2 back-and-forth dialogue and discussion, again trying to
3 thoroughly understand each of these major topics and various
4 points of view on those topics, but also to explore what
5 other issues you might want to raise. And we'll go through
6 that set of discussion items for each of the sessions, eight
7 of them, by the end of tomorrow.
8 Why don't we just talk through the agenda a little
9 bit so you can get a sense of where we're headed, and you
10 can ask any questions or offer any comments that you might
11 have about it.
12 We start today with an opening of just a general
13 introduction into why we are here in this room discussing
14 these issues today, what is it that's prompting NRC to
15 consider a rulemaking on this range of issues, and then
16 we'll take a break during -- at some point in this morning.
17 We'll probably try to stay on schedule if we can, unless the
18 flow of discussion dictates otherwise. And later this
19 morning begin to talk about what the overall picture is for
20 NRC with licensees on solid materials release.
21 SPEAKER: Barbara, are there any extra copies?
22 MS. STINSON: Yes, they are all -- I think there
23 should be plenty, and we'll bring some more in and circulate
24 them if anybody else needs a copy. You should grab the
25 latest one from today if you don't have it. It's just got a

1 few more refinements to it.

2 We'll take a break for lunch. Lunch will be on

3 your own. We'll have some suggestions for you in the area.

4 There's a restaurant here in the hotel as well. It's going

5 to be able to accommodate many of us, not all of us. And

6 this afternoon we start to talk about what the NRC is

7 currently doing to control solid materials, what is the

8 case-by-case approach, and how is it being conducted

9 currently, and other associated issues.

10 After a break later on this afternoon we'll start

11 to talk about the alternatives, and this is an important

12 area. There's a number of alternatives listed in the issues

13 paper. We'll start with a presentation that describes

14 those, but really begin to explore what are the implications

15 of some of those alternatives, and what are some other

16 alternatives that the NRC should be considering. So again

17 your creative input is going to be useful in that

18 discussion.

19 By the late afternoon we will close with a

20 discussion on how do you assure controls under various

21 scenarios, under various alternative approaches. And

22 there's a number of mechanisms already in place, and you may

23 have ideas about others. Clearly under any of the

24 alternatives and any of the approaches there are going to be

25 concerns about assuring that controls and standards or

1 whatever approach is adopted is maintained.

2 Tomorrow morning we'll open at 8:30 with a review,
3 a brief review of the content of NUREG-1640, which is a
4 popular new document that's been in circulation a little
5 while. It's radiological assessments for clearance of
6 equipment and materials.

7 Unfortunately we've had a glitch in our transport
8 and mailing system, and those are not here for you to look
9 at right now. It's a two-volume set, if you've seen it.
10 It's in draft form. It's open for comment. And were hoping
11 they're going to be here by first thing in the morning. So
12 we're working to have those, and if you haven't received a
13 copy of the executive summary, we have copies of that
14 available as well. So in case you're completely unfamiliar.
15 But regardless, Bob Mack will walk us through a description
16 of some of the methodologies used for NUREG-1640.

17 Later in the morning we'll begin to talk about
18 environmental impacts, environmental public health impacts,
19 and again that's across the full array of alternatives,
20 really trying to understand what some of the potential
21 impacts are that the NRC staff have anticipated and which
22 ones you all might suggest. And then we'll move on to a
23 discussion of economic impacts and potential costs and
24 benefits. And that will conclude by tomorrow afternoon
25 around three o'clock, the substantive portion of and

1 exploration of the meeting.

2 At three o'clock we'd like to have a discussion

3 amongst those who are able to be here still at that late

4 hour -- or not that late, but the close of the meeting --

5 and really understand what are some of the pros and cons.

6 In summary, after all the information that you've heard and

7 the views expressed, et cetera, what are some of the pros

8 and cons of various alternatives, and just some general

9 advice from you all back to Don and Trish and the rest of

10 the staff about how to proceed with this determination on a

11 rulemaking.

12 By four o'clock we'll adjourn, and like I say,

13 shortly after this meeting, we'll provide some brief

14 highlights that will basically capture what's put on the

15 flip charts. We'll supply those to everyone, and begin

16 preparing for the next meeting.

17 Are there any questions about the agenda? Any

18 comments about it?

19 We can make adjustments as we go along. Certainly

20 ideas that come up regarding the process of discussions are

21 as welcome as the substantive input.

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

23 Trish?

24 MS. HOLAHAN: Okay. Thank you.

25 As I mentioned, I'm Trish Holahan from the NRC. I

1 wanted to start off a little bit this morning with talking
2 about why we're here today, and what you perceive, and we're
3 looking for input back and feedback as to where you see the
4 need and things like that as to where we're going.
5 As you've already heard, part of our purpose for
6 being here is in terms of looking at our congressional
7 mandate and responsibility for the protection of the public
8 health and safety and the environment, and as a result, this
9 is one of the issues that is part of that, and we'd like to
10 look forward to move on that.
11 But, as I say, what is the need for some effort in
12 this area? Why are we examining our approach for
13 controlling solid materials with small amounts of
14 radioactivity?
15 We know that there are solid materials at licensed
16 facilities today that will need some form of disposition.
17 These materials range from having large amounts of
18 radioactivity to no activity at all. All of this material
19 will ultimately need to be disposed of by some safe means.
20 As I say, today we're trying to focus on that material that
21 has small amounts of radioactivity, and therefore the
22 overall question is how should these materials with this
23 small amount of radioactivity be handled.
24 For example, consideration might be given to
25 whether all material should be buried in a licensed

1 low-level waste disposal site, or alternatively is there a
2 safe way to reuse or recycle some of these materials if the
3 radioactivity levels are low enough, either some quantities
4 of these materials, some types of these materials -- as many
5 of us are aware, there's a growing interest in recycling and
6 conserving resources, and reducing overall disposal costs
7 for a large volume of slightly contaminated material that
8 may pose very small risks to the public. And so there are a
9 number of issues associated with this.
10 While there are standards for disposing of
11 material with large amounts of radioactivity at licensed
12 burial sites, there are currently no generally applicable
13 NRC regulations for control of most of these materials with
14 small amounts. Nonetheless, licensees are still coming in
15 to seek to release of materials when they're obsolete or no
16 longer useful, or when the facility is being shut down or
17 decommissioned. In the absence of a standard, NRC has
18 developed guidance as to the acceptable levels that can be
19 used by both NRC staff and licensees in looking at this
20 material, and therefore currently the decisions are being
21 made on a case-by-case basis, and we'll hear more of that,
22 as Barbara mentioned, this afternoon.
23 Although the guidance is considered safe, the lack
24 of criteria creates inconsistent release levels, and
25 therefore nonuniform levels of protection. In order to try

1 and address these limitations of the case-by-case approach,
2 NRC wants to consider all the issues in an open public
3 forum, and look at a full analysis of all the health and
4 environmental impacts involved with the situation, as well
5 as evaluating the related economic impacts.
6 You might ask why NRC? What's NRC's role and
7 authority in setting these standards? Not all radioactive
8 material is under NRC jurisdiction, but only that material
9 that is related to fuel cycle or made radioactive in a
10 reactor. The individual States regulate naturally occurring
11 and accelerator-produced materials.
12 NRC's authority and responsibilities were
13 established in the Atomic Energy Act of 1954, which was then
14 amended most recently in '75, and as part of that, NRC
15 issues regulations which provide for the protection of
16 public health and safety from the use of radioactive
17 materials, and also regulates and inspects this material and
18 its uses by its licensees to ensure that it's being used in
19 a safe manner.
20 What's NRC's interaction with EPA and the
21 interface? EPA does not regulate licensees in the same
22 manner that NRC does, but rather EPA sets generally
23 applicable environmental standards that NRC would then
24 implement through rulemaking for radioactive material that's
25 under the Atomic Energy Act. However, as in this case, EPA

1 is not currently considering rulemaking in this area, and
2 therefore in the absence of EPA standards, NRC has the
3 authority to set radiation protection standards for its
4 licensees.
5 A question that we have been asked on numerous
6 occasions is has NRC made any decisions to date? Where are
7 we in this process? Well, as many of you may know, in June
8 of 1998 the Commission did issue direction to the staff to
9 develop a dose-based regulation for clearance of materials
10 and equipment containing residual radioactivity using an
11 enhanced participatory rulemaking process.
12 Subsequently in June of 1999 the Commission
13 approved publication of an issues paper which was published
14 on June 30 of '99, and lays out several alternative courses
15 of action and announces a scoping process for environmental
16 considerations. As part of that, NRC is holding public
17 meetings to solicit early input from a variety of interested
18 parties in a collective form, and this is one of those.
19 And then finally in September of '99 -- and
20 Barbara mentioned there are copies outside -- the Commission
21 issued further direction to proceed with the enhanced
22 processes as currently scheduled, and then the staff will
23 prepare a paper and briefing on the results of the public
24 meetings, the status of the technical analyses, and
25 recommendations on whether to proceed with rulemaking or if

1 there are other staff actions that should be taken on this
2 issue. As part of that, we would include the stakeholder
3 reactions and concerns, and that's why these meetings we
4 feel are critical in terms of giving us input to go back to
5 the Commission in March.
6 Why publish an issues paper? Let me expand on
7 this a little bit further. As I say, we're in the very
8 early stages of considering the various alternative courses
9 of action. In considering how to proceed, what should be
10 the criteria if we do proceed?
11 NRC plans to enhance the process by getting early
12 and continuing public input and discussing the issues. The
13 issues paper presents various issues and alternatives. It
14 is not meant to be the only alternatives. As I say, we're
15 looking for additional alternatives as well to consider
16 related to the control of solid materials. We hope to
17 foster discussion, and then the comments on these can either
18 be submitted here at the meeting, the transcripts are all
19 part of the public record, they can be submitted
20 electronically or in writing.
21 It may be that after hearing some of the
22 discussion today you can go back and think and want to
23 provide us additional comments, and that's welcome. We're
24 holding the four public meetings, and the primary objectives
25 of these public meetings are to ensure that the relevant

1 issues are identified for an exchange of information not
2 just between NRC and you, but amongst yourselves, so that
3 you can discuss with each other what the issues are, to
4 identify the underlying concerns and the areas of
5 disagreement and where possible identify approaches for
6 resolution. As I say, if you have a specific position, to
7 provide us that rationale for that position is as important
8 as the position itself.
9 Also, we'll then identify any other issues and
10 alternatives, as I already mentioned. We will continue to
11 conduct an enhanced participation including opportunities
12 for ongoing dialogue and input as well as the early input.
13 In determining a course of action, we'll consider the public
14 comments, the health and environmental impacts, and also the
15 cost-effectiveness of alternatives, and that will all factor
16 into our decision making process.
17 I've talked about enhanced participatory process.
18 How does that differ from our typical rulemaking process?
19 Well, typically what we would do is we would get early and
20 substantive input from the agreement States by developing a
21 rulemaking plan which would go out to our agreement States.
22 I'll talk a little bit more about the agreement States in a
23 minute.
24 Following the Commission approval of that
25 rulemaking plan, we would develop a proposed rule, and as

1 part of that proposed rule, we would consider the
2 environmental impacts in accordance with the National
3 Environmental Policy Act. I apologize for our acronyms on
4 the slides, but I believe there's a listing of the acronyms
5 out on the table outside. Also, we would look at the
6 cost-benefit analyses. And all these pieces would be
7 published as a draft for comment, public comment. Following
8 the public comment we would consider them and then prepare a
9 final rulemaking.
10 What additional steps are we considering in an
11 enhanced process? Well, as I've already mentioned, we have
12 the issues paper that was published in the Federal Register
13 and is also up on the Web site, and the Web site address is
14 also available outside. We are holding these facilitated
15 meetings. We're going to be placing follow-on documents on
16 the Web site. We've already got the transcripts on the Web
17 site. As we develop staff drafts, those will go up on our
18 Web site.
19 There's also the capability to provide input by
20 e-mail through listserves and so on and so forth. Also,
21 we'll be holding periodic open working group meetings. And
22 then there will be updates and briefings of the Commission
23 that are open to the public. As I mentioned, the September
24 '99 SRM indicated that there would be a briefing in March of
25 2000, and that would certainly be open to the public.

1 In addition, one additional piece that factors
2 into our decision making is in 1995 the National Technology
3 Transfer Act, which was a public law, requires Federal
4 agencies to use voluntary consensus standards in lieu of a
5 Government unique standard, where possible or when
6 available. In this particular area, there is a voluntary
7 consensus standard that is not published as final yet, but
8 we understand has been approved, and that's an ANSI
9 standard, the American National Standards Institute has a
10 standard that relates to the clearance issue.
11 In addition, as far as the enhanced input is again
12 in accordance with the September SRM, if the Commission
13 decides to proceed with rulemaking, they've directed that
14 the preliminary generic environmental impact statement would
15 be issued as a draft, and we would hold additional public
16 meetings on that preliminary GEIS before actually publishing
17 it for comment. So one of the questions we would ask is are
18 there other suggestions as to how we could enhance input.
19 One final point that I'd like before I open it up
20 for discussion is I mentioned that the issues paper also
21 announced what we call a scoping process. In accordance
22 with NEPA, or the National Environmental Policy Act, if
23 we're doing an environmental impact statement, we need to
24 scope out what are the environmental issues. We believe
25 that it's both effective and efficient to seek comments on

1 both of these at the same time to maximize and utilize the
2 available expertise and input that we have at these
3 meetings.
4 A major consideration of the issues paper are the
5 potential health and environmental aspects, and also the
6 scoping process identifies range of environmental issues.
7 Since the principal issues are the same, we felt it was, as
8 I say, efficient to get input on both at the same time. So
9 that's also part of the purpose of this meeting.
10 And at that point, I'll turn it back over to
11 Barbara and open it up for discussion, try to get some
12 feedback on some of these specific issues such as the need
13 for this effort, and also what we can do to enhance
14 participation.
15 MS. STINSON: Let's start with questions of
16 clarification. We want to be sure that everybody has a
17 common understanding of the general introduction that Trish
18 has provided. We're going to talk about a lot of these
19 issues in much greater depth through the course of the two
20 days. But anyone have any questions for Trish regarding
21 some of the key elements of why NRC is proceeding with this,
22 what's driving the rulemaking, et cetera, that you'd like to
23 ask? Is it all crystal clear?
24 MR. PORTER: I'm Henry Porter with the South
25 Carolina Department of Health and Environmental Control.

1 My comment isn't really on what's driving the
2 process, but that I think it's a good process, the enhanced
3 process, having the early public involvement I think is
4 going to lend a lot of credibility to the process, and
5 because this particular rulemaking affects so many
6 industries not already regulated by the NRC or the agreement
7 States, I think that makes it even more important, and
8 because it has impacts on the public. All of those are
9 important reasons for having this early involvement.
10 MS. STINSON: Good. Thanks. And we'll talk more
11 about what early and ongoing involvement really means.
12 Other initial questions?
13 MR. MATEA: Good morning. Mike Matea with the
14 Institute of Scrap Recycling. The question that's come to
15 mind -- agreement states. I think that makes it even more
16 important and because it has impacts on the public. All of
17 those are important reasons for having this early
18 involvement.
19 MS. STINSON: Good thanks. And we will talk more
20 about what early and ongoing involvement really means.
21 Other initial questions?
22 MR. MATEA: Good morning, Mike Matea with the
23 Institute of Scrap Recycling. The question that has come to
24 mind and we haven't gotten an answer in our discussions is I
25 believe that for some time the EPA was looking at the same

1 issue and examining the science involved, and my
2 understanding is decided not to proceed because there wasn't
3 a comfort level that this type of release level could become
4 achieved.
5 Based on that uncomfortableness on behalf of the
6 EPA, why would the NRC proceed without trying to get both
7 entities comfortable with the same process, since they both
8 have expertise?
9 MS. STINSON: Why don't you start, Trish, and then
10 we will go to John.
11 MS. HOLAHAN: Okay. We are working with EPA. As
12 I say, you are correct, they did a rulemaking effort and it
13 is currently on hold, or that effort was stopped. But we
14 are working with EPA. They have developed certain technical
15 bases and they are participating on the working group that
16 we have for this rulemaking effort.
17 And perhaps, John, could you add to that perhaps?
18 MR. KARNAK: Sure, why not. I am John Karnak with
19 EPA. Mike and I know each other, and perhaps let me just
20 clarify a bit. Not necessarily uncomfortableness with doing
21 something here, but in the process of doing our work, we
22 looked at all of the material that might be available for
23 recycling and felt that the volume that was possibly -- we
24 looked primarily at metals when we looked at ours, and the
25 volume of material that might be available was very small

1 compared to what is recycled in the United States. But in
2 the process, and Mike was one of the ones who helped us
3 bring to our attention the fact that there were orphaned
4 radiation sources that ended up in scrap metal that posed,
5 in Mike's opinion, and we tended to agree with him, a bigger
6 problem, and, therefore, we went after the problem of
7 orphaned radiation sources and put together a problem with
8 the states through the CRCPD, and some of you are familiar
9 with that. And we felt there was just a higher priority to
10 look at orphaned sources.
11 And then, secondly, as I mentioned when I
12 introduced myself, potential of material coming in from
13 foreign countries. There is a lot of stuff that is getting
14 recycled in some foreign countries where the controls are
15 virtually absent. And we felt that it was necessary, or
16 advisable to work with the IAEA to try to help bring some of
17 these kind of things under control, and felt these were
18 higher priorities, not that we are abandoned or anything as
19 far national standards. We, in fact, did put together our
20 draft information and we are not working on a standard now.
21 I did want to -- that is correct, we are not working on a
22 standard. And the NRC is within their jurisdiction to go
23 forward with the standard for the licensees in the absence
24 of us doing one.
25 Did I answer the question?

1 MS. STINSON: And this, of course, highlights one
2 of the issues I am sure we will get into some discussion of,
3 which is -- what volume of material are we really talking
4 about, not only in metals, but in some of the other solid
5 materials? And how does that contribute to the potential
6 need for some kind of action on the NRC's part?
7 Other questions? Other comments on this initial
8 presentation? And, again, you will have opportunity -- we
9 want to explore in depth some of these issues as we get into
10 other presentations.
11 I am going to go to Terry, if you don't -- he has
12 got a mike there. Go ahead.
13 MR. SIVIK: Terry Sivik, representing American
14 Iron and Steel Institute. I attended the last session in
15 San Francisco, and I noticed a number of people who are in
16 this room also did. And one of the issues that came out was
17 is we spent 80 to 90 percent of the time talking about
18 recycling of steel, as opposed to the other materials. And
19 it was clear at least from the steel industry's perspective
20 that we did not want free release of steel into the
21 environment or into the consumer products because of the
22 perception associated with the steel.
23 I was wondering if there is going to be some
24 expanding of the discussions without necessarily putting all
25 the detail and focus into steel, because, again, we are a

1 united metals front here, and not just steel, primarily the
2 nickel people and the other metals people are against the
3 release of the steel into -- the metal materials into the
4 consumer goods. So I was just wondering, are we going to
5 try and work on some other aspects of this other than the
6 metals?
7 MS. STINSON: That is a very good question and, of
8 course, there is good representation from the steel industry
9 here today. We have been, in trying to convene this
10 process, solicit the input from and the participation from
11 copper, nickel, other metals, from the concrete industry and
12 maybe some of you all in your associations can, you know,
13 with your colleagues, let us know of other individuals that
14 we can contact. We are hoping that, certainly by the
15 Washington, D.C. meeting, there will be enough advance
16 notice that people can participate and we can have more
17 focused discussions on some of the other materials. And
18 maybe some folks even today can bring out some of the issues
19 that might be related to some of the other materials that
20 would be affected by a potential rulemaking.
21 Val.
22 MR. LOISEL: Yes, Val again from Armor. One thing
23 that was brought up was the ANSI consensus standard. At
24 some appropriate time if someone in the room has more
25 knowledge on that, I would like to hear more about it.

1 MS. STINSON: Yeah, if there is not someone here
2 in the audience who has some specific association with ANSI,
3 then I am sure some of the NRC staff would be available to
4 do that.
5 Go ahead.
6 MR. KLEMENTOWICZ: I'm Steve Klementowicz, NRC. I
7 would like to address the issue about the steel. As part of
8 this process we are looking at soil, the potential for
9 releasing soil that has low levels. So it is not just the
10 focus on metals but soil got a late start. So this is
11 something that the NRC does have to evaluate. And I believe
12 there are some contracts with the -- okay. So NRC will be
13 doing work on the issue of soils and concrete. So I guess
14 you don't have to feel alone out there, just that we are
15 focusing on metals and steel.
16 MR. MATEA: Just one quick question.
17 MR. STINSON: And your name and affiliation again?
18 I'm sorry. We have got to do that every time.
19 MR. MATEA: It is Mike Matea with the Institute of
20 Scrap Recycling. The initial comment period was set as
21 November 15th to correspond with what was going to be the
22 last meeting at NRC the first of November. Since the
23 Chicago meeting was pushed back, is the comment period date
24 going to be pushed back as well?
25 SPEAKER: Yes, go ahead.

1 SPEAKER: Oh, I am sorry. Yes, it is. We just
2 got the finalization of the dates for the Chicago meeting as
3 December 7th and 8th, and as a result, we will be extending
4 the comment period on the issues paper to December 22nd. We
5 have not, because we are here this week, not got the Federal
6 Register Notice out, but we will be issuing a Federal
7 Register Notice officially extending the date of the comment
8 period.
9 MR. LEMASTRA: Tony Lemastra, American Iron and
10 Steel Institute, but in this case I am on the Health Physics
11 Society's N-13 Committee that essentially reviewed the
12 Health Physics Society standard, in answer to the gentleman
13 from Armor. That standard was looking at a couple of
14 things. One was to move beyond surface contamination to
15 also look at volumetric, and also to look at a lot of things
16 that might be within a facility, tools, for example, milling
17 machines, heavy equipment that had a fair amount of value
18 that could be moved from, let's say, the restricted area to
19 the unrestricted area, tools like wrenches, hammers,
20 screwdrivers, things like that, that perhaps don't have a
21 lot of value, but have a lot of bulk that would increase the
22 cost of disposal in a low level rad waste site, that, if
23 they met the guidelines, could be then essentially moved
24 into an unrestricted use.
25 So there was a lot there that was beyond or not

1 focusing on just free release to the, for lack of a better
2 word, I will use the environment, meaning whatever is
3 outside of the site boundary.
4 MS. STINSON: And perhaps others will have
5 comments on it as we go through the day. Paul.
6 MR. GENOA: Yes. Good morning, Paul Genoa with
7 the Nuclear Energy Institute. And I think the point that
8 you have brought up is very important. I think that the
9 context of this meeting in San Francisco tended to get
10 shifted towards this idea of how much radioactive material
11 is okay to shift to the steel industry, and I don't think
12 that is really where the discussion wanted to go. There is
13 no economic necessity to make that happen, it is not
14 acceptable to the public.
15 The point is that materials needed to be released
16 from facilities every day, as you have pointed out. There
17 are welding machines and trucks, and tools and people and
18 clothing, and trash, and you name it, it has to come out of
19 that facility. A guy has got a lunch box, he has got to go
20 home at night. And so you have to have a standard that
21 allows you to sort those materials that can safely go out
22 from those materials that need to continue to be regulated
23 in some fashion. And that is what we are trying to get at
24 is that criteria and that threshold, and it has to cover all
25 materials.

1 I believe that the focus on steel recycling occurs
2 because in regulatory or engineering space, we like to do a
3 bounding calculation -- what is the worst case? Oh, well,
4 let's assume in a worst case the criteria allows a certain
5 amount of radioactive material to go out. What is the worst
6 case situation? Oh, it gets concentrated in a recycling
7 mode. Well, if we can control that, then everything else is
8 safe. So I think that is how we started to get this focus,
9 you know, on recycling. And I think we need to bring it
10 back into balance, that there needs to be a clear criteria
11 of what can be released, because it is being released today,
12 and how to move forward. Thank you.
13 MS. STINSON: Anybody want to build on that
14 comment with perhaps other perspectives on what really is
15 the need and where might you -- what is the need in terms of
16 types of materials, volume of materials, et cetera, and
17 where might boundaries around, in terms of regulatory
18 control, be considered? Or other issues or questions that
19 you might have.
20 MR. NELSON: Bob Nelson with NRC. To follow-on on
21 that, there is -- I agree, we did spend a lot of time at the
22 San Francisco meeting on metals. It may be because of the
23 audience that was there, but I think we pointed out there,
24 and I will point out here, that release can really address
25 three different scenarios, recycling, which we spent a lot

1 of time at, at San Francisco, but direct reuse of material,
2 and disposal in other than a regulated low level waste
3 disposal facility. So there is really three processes,
4 recycling, reuse, and disposal. And we need to look at all
5 three of those rather than just focusing on recycling, and
6 in the case of San Francisco, recycling of metals.
7 MS. STINSON: Other comments? Comments on that
8 suggestion? Art.
9 MR. PALMER: Art Palmer, ATG. I just wanted to
10 maybe cast a little bit of light on some of the economics
11 that are associated with disposal of some of the material.
12 Thanks a lot. When we are talking about disposal of near
13 environmental levels in low level waste disposal landfill,
14 we are talking about on the order of $40 to $60 a cubic
15 foot. And when you get into disposal of near environmental
16 levels in Subtitle C or D landfill, you start looking at
17 costs on the order of $20 a ton. That is a significant
18 difference. And that is one of the things I think that is
19 really driving this issue right now is the monopoly that has
20 been created in the United States.
21 MS. STINSON: Mike.
22 MR. MATEA: Mike Matea with the Institute of Scrap
23 Recycling. I am not comfortable with the concept that we
24 need to move away from the discussion for recycling, because
25 if disposal or reuse was really that viable an option, we

1 wouldn't all be here today. I mean the idea is that we have
2 been hearing that there is a great deal of material there,
3 and that disposal or reuse is not that viable an option to
4 cover the bulk of this. So recycling probably is the viable
5 option as, I would say, if you were looking at it from the
6 standpoint of those who are sitting on the material.
7 The problem is that when you look to recycle this
8 material, the concern -- and I can't speak directly for the
9 steel industry, but I hope I will properly, is that there
10 are two concerns. Number one, there has been a concern
11 because of history, of the amount of problems that
12 radioactive material have caused. Very much so for the
13 steel industry and especially so on some recent occasions,
14 for the recycling industry. So there is that concern that
15 there has been a history of problems, and we have seen what
16 those problems can cost, and the damages they can do.
17 There is the next concern is that is for
18 perception. That the recycling industry feeds material to
19 the steel industry, and the steel industry then feeds
20 material to the public. And if the public doesn't want
21 radioactive material of any concentration having been in the
22 feed stock to make the new steel, or the new aluminum, or
23 the new stainless, regardless of how low it is, then all the
24 scientific data in the world, and all the assurances of
25 annual exposures aren't going to help industries who have to

1 sell to the public, who have to sell to industries who say,
2 I don't really want that material.
3 And so I think that the impact on steel and
4 recycling, and aluminum and nickel recycling, and the making
5 of new products from the scrap need to be addressed as
6 probably the main issue, because, as I said at the
7 beginning, if reuse or disposal was that viable an option,
8 we probably wouldn't be worrying about a release value,
9 because you would be already reusing or disposing without
10 worrying about coming to private industries to take this
11 material and to reuse it.
12 MS. STINSON: Good. Thank you. Other points of
13 view on those issues? Comments? Terry and then we will
14 come back to Norma.
15 MR. SIVIK: I want to second Mike's comments. My
16 comment was to basically try and get the issue of recycling
17 steel from this -- out of the arena, because we are
18 violently, vehemently against it, and we will do everything
19 we can to ensure that the safety of our products and the
20 public perception is not hindered for use. This is our
21 livelihood.
22 And I just want to give you an example of what
23 kinds of things happen. And this has nothing to do with
24 radiation at all. I got a call from one of our customers
25 asking if we could certify that the level of mercury in our

1 steel was 1/10th -- below 1/10th of a part per billion. And
2 I scratched my head and I said, well, I can tell you it is
3 below 1/10th of a part per million, but I can't tell you
4 that it is below 1/10th of a part per billion. Why do you
5 need to know? Well, our customer, a large automotive
6 company in the United States, wants to know that.
7 Well, they make paint cans for the automotive
8 industry. So the automotive company wanted the company that
9 we sell the steel to, that makes paint cans, to assure the
10 level of mercury in there was below a tenth of a part per
11 billion. That is actually below the level of analytical
12 detectability using the most extreme methods for analysis.
13 So this, these are the kinds of things that the
14 steel industry will be facing.
15 MS. STINSON: Norma.
16 MS. ROGERS: Norma Rogers from Allied Signal.
17 From the perspective of a small entity involved in all this,
18 there are a lot of waste that is not steel. My biggest
19 actual component at my facility is already dealt with the
20 NRC on a case-by-case basis, and it has nothing to do with
21 steel whatsoever, and reuse, recycle is actually part of the
22 process. And cost is a very big factor if you are in the
23 nuclear industry.
24 Public-wise, I have met very few people that want
25 any nuclear anything. And if you tell them that you are

1 getting radiation from X-rays or medical situations, half
2 the public, you blow their mind. And your customer with the
3 mercury, they have got to dispose of those paints cans, and
4 disposal costs, believe me, are very, very important. We
5 have been working for a year, a whole year, trying to
6 dispose of one thing, to try and get the cost manageable.
7 And the cost is very, very expensive.
8 The other gentleman brought the subject up, for
9 someone in the industry, someone that has the material, and
10 when it comes to low level, we got it, that is all it is, we
11 don't have anything enriched, and we have a big problem with
12 it. So, to me, metal is just one-third of the issue, it is
13 certainly not the issue.
14 MS. STINSON: Could you -- Norma, could you just
15 give one sentence on Allied Signal and what materials, other
16 materials you have to --
17 MS. ROGERS: Allied Signal is a converter of
18 natural uranium into uranium hexaflouride. We are the third
19 step in the fuel process. It is dug up, it is milled, it
20 comes to us, and then it goes to enrichment. So we are the
21 only facility in the United States that does this, and there
22 are five worldwide, I think, that do this process.
23 MS. STINSON: And the other materials that you are
24 dealing with in terms of reuse or disposal?
25 MS. ROGERS: We have byproducts created throughout

1 our process, and those -- and we have waste steel. We have
2 scrap drums. The ore, uranium ore concentrate comes in 55
3 gallon drums. We have to do something with those drums. We
4 have to clean them or something, recycle them through reuse.
5 Just -- there is nothing wrong with the drums. We have to
6 deal with the metal and whether or not someone can take it
7 to put some other type of something into it or not. That is
8 part of it.
9 We have soil that if we -- you know, if I dig a
10 hole to put a post in it, I have got soil I have got to deal
11 with. So, and I can't always put it back in the hole. Even
12 if the hole is -- everything around it is contaminated, the
13 soil I dig up is contaminated, I can't put that back in that
14 hole, I have got to get clean soil in that hole. You know,
15 these are some of the issues that we have to deal with. And
16 it is, to me, I understand the steel industry's problem from
17 a public perspective, because we have to deal with that
18 also. But it is -- to me, it is not all steel, there is a
19 lot of other problems.
20 MS. STINSON: Others?
21 MR. REITER: Ed Reiter from Westinghouse. I have
22 heard a couple of comments this morning about the public not
23 wanting radioactivity in their recycled materials. First of
24 all, I am very disappointed the public hasn't participated.
25 I know that the NRC has nothing to do with that. But I wish

1 the public were here to participate with us. And as a
2 health physicist, I believe that if the public is properly
3 informed about the issues, the fact that everything we
4 handle is radioactive, has radioactive materials, both
5 natural and man-made, and that if we establish the dose
6 standards properly, so that they are a small fraction of
7 what people are being exposed to routinely from natural
8 background, I believe the public will accept the NRC's
9 standard in this area.
10 MS. STINSON: Go ahead, Bob.
11 MR. MACK: Turn this ways. I am Bob Mack from the
12 NRC. I am wondering if we could draw out or elaborate a
13 little bit more on a comment that was made earlier, I
14 believe from the steel industry. And that is there seems to
15 be a couple of facets here that you are wrestling with and,
16 therefore, we indirectly are wrestling, and that is there is
17 a safety issue on one hand and public perception on the
18 other. And while they are linked, they may be independent
19 at some point. And so the question is, how should the NRC
20 expend its efforts in wrestling with these problems with the
21 steel industry Where should we be putting our efforts? Are
22 we doing it in the right sense?
23 MR. LEMASTRA: Tony Lemastra again, representing
24 AISI. Actually, this week I was supposed to be out in
25 Seattle at a committee meeting that is addressing this very

1 issue from the National Commission on Radiological
2 Protection, the NCRP. One of the issues that may address
3 this is the concept of a dedicated melter where the material
4 goes to a fully licensed melting facility that serves two
5 purposes, one in the refining phase or the refining of the
6 metal, in the heating of it, you actually clean it. That
7 could be for any of the metals, essentially, you know,
8 whether you are talking steel, aluminum, nickel, copper,
9 whatever.
10 Then that could -- you know, where it goes from
11 there is something -- is a second issue. I believe the
12 steel industry's position on this is that that remain within
13 a licensed confine. When you look at -- just looking at
14 economics, when you look at the total volume of metal that
15 would be recycled for remelting, you are not really looking
16 at that much, definitely in steel. Probably you are in
17 things like stainless steel, if it would be recycled.
18 There is also an economic factors with things like
19 nickel. But the attitude within, from what I have heard
20 within the nickel organization is that they really don't
21 want to touch it, even though there is a great financial
22 incentive there.
23 But looking at the dedicated melter concept as a
24 licensed NRC facility that would then take the metal, melt
25 it, clean it, possibly reuse it or possibly make things out

1 of it that would then go back into a regulated environment
2 again is one issue, or one thing for the NRC to consider.
3 When you look at economic costs, and coming from a
4 health physics background, with the whole idea of ALARA, as
5 low as reasonably achievable, what we as a group have to do
6 is look at the total economic impact. And, yes, there is an
7 impact on Allied Signal, there is an impact on the nuclear
8 industry. But if you look at what the impact is, and,
9 again, I will focus on steel because that is where I come
10 from. If you look at the impact of, let's say, cleared
11 recycled metal coming into a plant, there is a very good
12 chance that when you are looking at Energeta gamma emitters,
13 you will have enough potential to cause an alarm. That is
14 going to result in -- yes, yes. Yeah, I have basically
15 looked at it.
16 SPEAKER: [Inaudible.]
17 MR. LEMASTRA: No, I have --
18 SPEAKER: But you are prepared not to do that one
19 at all.
20 MR. LEMASTRA: Okay. If you cause an alarm, you
21 are going to cause a response from the steel plant. There
22 is a cost involved there. If you continue to cause alarms,
23 there is going to be a tendency for the people that man
24 these systems to ignore them. If they ignore them, there is
25 the potential cost of eventually missing a real source that

1 could be contained in the scrap. So there are some, you
2 know, ancillary costs there that the steel industry is
3 really worried about, not to mention the one that Tom talked
4 about, the real impact on the industry which could see a
5 loss of an entire market.
6 MS. STINSON: We want to spend a great deal of
7 time talking about economic impacts, costs and benefits, et
8 cetera, various alternatives, so I appreciate you flagging
9 that issue. Val, and then --
10 MR. LOISEL: Yeah, Val, Armor again. These topics
11 get pretty exciting for me. They get my blood running. But
12 let me explain that Armor companies really don't need to be
13 here in the sense that we are a highly regulated since the
14 license, itself, is a vehicle of prohibition in many cases.
15 For example, on release and metals with volumetric
16 contamination, I can't do it. My license doesn't permit it.
17 So, if the environmental community really understood the
18 licensing process and the prohibitions that are inherent in
19 it, they would, also, see where we are today.
20 Okay. So, now, the view is there are many more
21 materials, especially metals, that need some attention in a
22 volumetric way. I don't think we're going to get very far
23 until we get some support from the rest of the industry
24 that's involved with this process with us, whether it's ESRE
25 and the recycling of metals, scrap recycle, or if it's the

1 steel industry. It just doesn't go anywhere until we
2 develop that level of comfort.
3 What I would like to -- you know, this goes --
4 this is a long story, but let's begin it by saying that
5 fugitive sources, which are the biggest headache for the
6 steel mills, are really a part of, but not a part of this
7 discussion. We do not advocate handling or recycling of
8 sources. Those things have to be regulated and controlled
9 throughout their life and through their final disposition.
10 And so, we're trying to get away from the notion that we're
11 going to cause a four million or a ten million dollar
12 shutdown of some facility somewhere at our expense or your
13 expense or society's expense. No, we're really looking at
14 that vast body of scrap metal -- from our point of view,
15 from the industry's point of view, it's very small -- that
16 we want to deal with and that there's low residual activity
17 and there should be some point below which it makes sense
18 not to regulate it. So, that's done.
19 Well, let me stop there for now. Thank you.
20 MS. STINSON: Thank you.
21 MR. CLARK: I'm Randy Clark with Westinghouse
22 Savannah River company. In our introductions, as I
23 mentioned earlier, we're in the business of resale of excess
24 assets. That's primarily equipment to the public. And in
25 doing so, that involves a large variety of equipment. It

1 involves cranes and generators and welders, pumps, extrusion
2 process, large pieces of equipment, compactors, trucks,
3 vehicles, road graders -- you name it, you know, we've sold
4 it at one time or another.
5 Most of this equipment has no radiological
6 history. However, some of it comes out of buildings, which
7 are not contaminated areas, are not radiological buffer
8 areas, but -- and are clean. But, we have to validate that
9 it's clean, even if it has no known radiological history, in
10 order to clear that equipment, even though it has no known
11 radiological history, by association of being in the same
12 area. And as you notice in some of the proposed language,
13 the word "area" is used, that you can be potentially suspect
14 of being contaminated by being associated in an area with
15 equipment. So, we have to have standards. And we use the
16 standards that the gentleman mentioned earlier that exists
17 today, to clear that equipment and validate that, in fact,
18 it is safe -- we're talking about surface level
19 contamination.
20 From an economic perspective, we have to be cost
21 effective. We do not try to sell a piece of equipment that
22 is highly contaminated. It has to be of large value, like
23 an extrusion press, and very low level in just a few spots.
24 Otherwise, we leave it to the waste cycle business. And I
25 think that's very important, is those items we can't clear,

1 I'm talking about equipment, for resale or processing and
2 economically gets some value out of them, then go to the
3 waste cycle process, and we have to go to low-level burial
4 or some other very expensive process down the road. When
5 you're dealing with a large piece of equipment, like a
6 Manitohawk 100-ton crane, which one we're looking at now,
7 the potential for decontaminating that and reselling it, is
8 that the cost of burial for that at $50 or $60 per cubic
9 foot, as someone mentioned earlier, is quite expensive. It
10 actually costs more than the original crane costs. So, you
11 can go out and buy a new crane at five hundred to seven
12 hundred thousand dollars, cheaper than you can bury it. So,
13 those are the kinds of decisions you make. So, if you don't
14 take the effort to clean it up, it's not a free ride to the
15 taxpayer. In fact, it quite often costs the taxpayer quite
16 a bit more.
17 So, for those reasons, we need the standards, not
18 only for the recycle metal recycle business, but for the
19 rest of the equipment, which is a very high volume
20 equipment. And today, when you look at all the so called
21 clean equipment that gets cleared, that volume is much
22 higher than the metals that we recycle today.
23 MS. STINSON: Thank you.
24 MR. CARDILE: These discussions are useful,
25 because --

1 MS. STINSON: Frank, can you mention your name,
2 please?
3 MR. CARDILE: I'm sorry, Frank Cardile with the
4 NRC, working on this effort with Patricia and Don Cool.
5 These discussions are useful, because they point out from a
6 variety of perspective, both the NRC licensees and the steel
7 manufacturers and the scrap dealers, what different people's
8 concerns are, and they funnel back, I guess, into the
9 general question that we're asking, at this session, why
10 should we examine our approach or reexamine our approach,
11 what's the need. We'll get into a lot more detail, I guess,
12 in some of the discussions we're going to have coming up
13 about what the current situation is and how that feeds into
14 this need.
15 But, it sounds like what I'm hearing is that, yes,
16 there's a need for a standard of some sort. As I think
17 Trish has already mentioned, the current case-by-case
18 approach, and as we'll talk about this some more, the
19 current case-by-case approach is that there's -- there are
20 things that are able to go out on their existing practices
21 and standards -- or not standards, but existing practices
22 and guidelines, but as an opening thought or whatever, it
23 sounds like there's a general feeling that there is a need
24 for a standard for NRC licensees, whatever -- we may not
25 agree, yet, upon what that standard should be. There's a

1 variety, and we'll talk about the alternatives. But, it
2 sounds like it's useful to, I'd say, some consensus that
3 there's a need for a standard of some sort.
4 MS. STINSON: I would caution -- if you don't
5 mind, I would caution you, Frank, on the use of two words
6 there, "agree" and "consensus."
7 [Laughter.]
8 MS. STINSON: This is words that I'll be watching
9 out for carefully. I mean, the purpose of these meetings is
10 to try to get expression of the various points of view and I
11 think you're hearing a lot of good understanding of what the
12 underlying concerns and issues are for -- from a number of
13 perspectives, and we want to hear from others, as well.
14 But, I don't necessarily hear agreement that a standard is
15 the best approach and I don't certainly hear a consensus on
16 that. I understand what you're hearing, which is a lot of
17 --
18 MR. CARDILE: Concerns.
19 MS. STINSON: -- yeah, concerns and views
20 expressed on those issues. Is it Gwen or Vince -- oh, Mike,
21 and then we'll come back to Paul.
22 MR. MATEA: Mike Matea with ESRE again. Just to
23 respond to a comment that was made about it's a shame that
24 the public is neither involved nor informed, and I need to
25 argue that they are both. They are very much involved.

1 They're involved through the hundred plus environmental
2 groups who signed a letter to Vice President Gore. They're
3 involved through the dozens of groups that I've spoken with,
4 who have said, we don't want this material out in the
5 marketplace. We don't want this material going out.
6 They're informed by the news articles and the television
7 specials on things such as Paduca.
8 For us, here, it's a different animal at Paduca,
9 than what is being done. But, think of the words that are
10 used when they talk about Paduca. They talk about
11 radioactivity. They talk about release. And the general
12 public picks up on those buy words and they're concerned.
13 They're scared. And all of the science, all of the facts
14 and figures are not going to alleviate their concerns. And
15 it's these people in the general public that buy the steel,
16 that live in the buildings made by the steel, that buy the
17 aluminum, that buy the baby strollers that's made from the
18 aluminum or the stainless steel. They're the consumers.
19 They're the people that we ultimately serve as industries.
20 And if they're not comfortable, if they don't have a buy in,
21 then unless there is a tremendous plan for dedicated reuse
22 or disposal that does not go out into the general stream,
23 then the process is going to be quite doomed.
24 Again, for those of you that survived the BRCs,
25 remember that those folks are still around. They're still

1 concerned and they have some legitimate concerns. Because,
2 if the perception is, I don't want it, then that perception
3 equates to I won't buy it and that will directly affect the
4 steel mills, that will directly affect the recyclers who are
5 making products to be sold to the general public. And if we
6 can't provide them with a comfort level, this train is going
7 to go right down the same track as BRC and then we're just
8 going to have a lot more frayed nerves in the process. And
9 that is our biggest concern.
10 MS. STINSON: That raises a good issue, which is
11 actually the subject of, I think, the last slide, a question
12 about the process of involving the public and other interest
13 groups in this effort. Any advice that you all have -- I'll
14 go on to Paul's comment -- but any advice that you all would
15 have about conducting an enhanced process; what should
16 ongoing participation be; how do you make it meaningful; and
17 how might the NRC proceed with engaging other stakeholders
18 in this effort; how do we make these discussions meaningful,
19 in such a way that it attracts back some of the folks who
20 are not able to be here today. So, if you all want to think
21 about that question and address that, as well.
22 We'll go onto Paul.
23 MR. GENOA: Paul Genoa with NEI. And I'll try to
24 address a couple of comments that were made, because I think
25 this is what the real issue is, which is public acceptance

1 of any regulatory structure you put forward and I think it
2 is important. We need to have a successful process that
3 does build public trust and confidence. And to that end, a
4 couple of things were said.
5 Well, one, there's a concern that there will be a
6 stigma attached to steel products, and I certainly
7 understand your concern. There is a stigma attached to
8 certain nuclear industries, and that's a tough thing to live
9 with and we know what you're talking about and we don't want
10 to create that stigma. But, we have to talk about reality.
11 The reality is the steel that you recycle today has
12 radioactive material in it. It has since World War II and
13 it always will. And so, we have to keep it in absolute
14 terms. It, also, has lead and mercury and all those other
15 things associated with it, in one form or another. But,
16 there are limits established for those things that allow you
17 to sell it and have comfort with that. So, we have to deal
18 with those things.
19 But, you're right. There is a limit at what point
20 you can detect that material or that material really
21 produces an effect or concern. And I guess there has to be
22 a criteria, because there are no absolutes in our world.
23 The world is a very complicated place. In any material
24 there are billions of atoms; some of those atoms are
25 radioactive; some of them natural, some of them manmade.

1 That doesn't mean that you can't use that material for
2 something practical and you can't deal with it.
3 Without a criteria, you can't clean up facilities,
4 or you'll defer them forever. Does it make sense to take an
5 entire nuclear plant and put it in a hole in the ground, you
6 know; or does it make more sense to decontaminate aspects of
7 that plant, reduce the activity as low as possible and allow
8 that material to be concentrated and disposed of and
9 controlled safely, allowing the other material to go by?
10 You can't process and reduce the volume of radioactive
11 materials for disposal in a safe isolation, without
12 essentially volume reducing them, which means some material
13 goes off. It is allowed to be released to the environment
14 and that's because you've reduced the radiological hazard
15 associated with that. So, there's got to be an approach
16 there.
17 We do get confused and we talk about sources. And
18 I guess the orphan sources getting into the waste stream is
19 a real concern and there's absolutely -- you heard earlier,
20 that is a concern that should be addressed. The EPA looked
21 at the recycling issue and decided that's really where they
22 wanted to focus, getting those sources out. Now, there is a
23 complexity. I understand the implications, that if you have
24 a clearance, that that may affect the monitors that are used
25 to identify the sources. And I think you know the reason is

1 that the geometry of the detectors, themselves, are not
2 ideal for finding those sources, you know, allowing the
3 material to go through in bulk, where you're looking for
4 change in background, as opposed to sorting material out
5 over a larger area, where better coverage, less shielding of
6 the detector and so forth.
7 So, we're trying to deal with a problem that could
8 be caused, that's really an artifact of looking for these
9 sources that -- you know, it's real thing; I understand
10 that. But, I'm not -- it's not clear to me that a change in
11 the development of the clearance standard would affect that,
12 because, fundamentally, materials are being cleared today.
13 They always have been. They're coming in from overseas.
14 They're coming in from right here in this country, because
15 that's part of doing business. Now, the question is whether
16 you want to do that business under one consistent
17 health-based standard or whether you want to do it through a
18 patchwork quilt of criteria that has been established and
19 evolved over the years. And I think that's what we're
20 trying to do, is get to that criteria that would be
21 acceptable.
22 MS. STINSON: Jim?
23 MR. JIM TURNER: Well, I just had a question and I
24 think you just answered it. The question is: is what we're
25 proposing -- what you're proposing to do anything -- are we

1 going to release any more material? Are we doing anything
2 different than what we're already doing or are we doing it
3 on a case-by-case basis now? Will more material be released
4 or is this just a streamline method of releasing material --
5 or a consistent method? Is anything going to be different
6 functionally in society?
7 MS. STINSON: That's a good question. I think
8 we'll give NRC a shot at that question. Don?
9 MR. COOL: That's one of the questions that we're,
10 in fact, asking ourselves, as part of this process. And in
11 one sense, and I'll try to pick up on what Paul Genoa was
12 talking about, that's going to very much depend on the
13 criteria that ends up being set. What you see in the issues
14 paper as a range of possibilities would be from things very
15 similar to what happens today, to very much less, perhaps
16 slightly more. It would depend very much on the way in
17 which the criteria is established, the kinds of
18 implementation that you would do. So, in fact, we're very
19 much interested, and, in fact, I know that the Congress is
20 very much interested, they've asked us the question -- that
21 exact question, how much material. And we have given them
22 essentially the same answer, in that it depends on the
23 outcome of this process.
24 MS. STINSON: Art and then back to Paul.
25 MR. PALMER: Yeah, just one thing I want to do, a

1 word of encouragement and support, I guess, for NRC, but
2 something I'm looking for from this is similar to what the
3 FAA does. You know, they do a tremendous amount of
4 numerical analysis and probablistic risk assessments and
5 when they get all done, the FAA stands up and says it's
6 safe, okay. And that's my challenge and expectation for
7 NRC, is that NRC will stand up at the end of this process
8 and say this number is safe. This is a good number, we're
9 the guardians of this material, and we stand behind these
10 numbers. And I think that will go a long way to helping out
11 what the steel industry concerns are. But, if NRC bails on
12 that, this will wind up just like BRC, a de minimis, okay.
13 You really have an obligation to stand up and say, using our
14 best technical judgment, this is a safe number.
15 MS. STINSON: Paul and then Norma. Did you still
16 have something, Paul?
17 MR. GENOA: Yeah, very briefly; Paul Genoa.
18 Again, representing NEI and dealing with the utilities in
19 this country and some of the other users of nuclear
20 technology, we believe that the consistency of the standards
21 is what important, because that helps to build public trust.
22 And it's not important for us to release more materials than
23 we're currently releasing. But, if you have a criteria that
24 is nebulous, if you have a criteria that changes over time
25 or can be second guessed, it puts you at huge liability in

1 doing what you're currently doing. It stops the kind of
2 practices that are going on today, which are good practices:
3 to take radioactive material, clean it, concentrate it, make
4 is suitable for long-term isolation. But, you can't have a
5 cleanup like that, that allows cleanups to go forward, if
6 you don't have a way to sort out the other materials that
7 have been cleaned. So, yeah, my answer to your question is,
8 I don't think the flow of material will change
9 significantly; and, if it does, I'd be surprised.
10 MS. STINSON: Norma?
11 MR. ROGERS: Norma Rogers with Allied Signal. I
12 have a comment about the public. From experience, I live in
13 Paduca and so, everyday, I'm bombarded with the Paduca
14 issue. But, I understand more, because I'm in the industry.
15 I have a friend that lives in California and I don't know
16 why she wants to live there. There's an earthquake fault.
17 And the media tells me that's not a great place to live.
18 The media tell people that Paduca is not a great place to
19 live, in a sense that the DOE has supposedly released
20 materials or whatever.
21 I do not believe from various things I've been
22 involved in that the public is educated at all on nuclear
23 industry at all. Right now, the steel industry -- and I
24 understand their concerns immensely. Paduca sits across the
25 river from where I am, yet no one has asked us, at our

1 facility, any questions. Do you have plutonium at
2 Metropolis; they haven't asked. Well, no, we don't, but no
3 one seems -- you know, everything is Paduca. They don't --
4 it's whatever the media tells them.
5 The steel industry is the same way. They're
6 facing this thing that the media is going to put out there.
7 And the general public is not educated on anything nuclear.
8 I wish that some agency that had some means could do
9 something about this public issues. There are people
10 involved in little EPA groups -- I mean, environmental
11 groups around the country and I don't think they know
12 either, really.
13 MS. STINSON: Of course, if they were here, they
14 might contest the suggestion that they don't, in fact. But,
15 there is certainly a need for mutual education on all sides
16 about not only radiological hazard issues, but a whole range
17 of other issues. And maybe you guys can give us some
18 guidance as to how to promote that dialogue. John?
19 MR. KARNAK: I'd like to respond directly to what
20 you just said. In 1997, we published our technical reports,
21 talking about what we looked at, in terms of recycling
22 material. I subsequently received over 250 letters
23 addressed to me, personally, saying, do not recycle; do not
24 allow any of this material to be out; isolate us from all
25 radiation. With each one of those -- I hand signed a

1 response to each one of those people -- I can tell you how
2 long it takes to sign 250 letters -- and we included with
3 that a copy of a document that we have at EPA, called
4 "Radiation Risk and Realities." It's about a four -- a
5 six-page flyer that talks about some of the basis associated
6 with natural radiation and so on and so forth. And I can,
7 also, tell you that not one of those 250 people called me
8 back and said, oh, now, I understand.
9 MS. STINSON: I thin Vince and then we'll come
10 back up here.
11 MR. ADAMS: First question --
12 MS. STINSON: Name and affiliation, Vince; thank
13 you.
14 MR. ADAMS: Vince Adams, Department of Energy.
15 How does the NRC plan on tying this process and the
16 standards derived thereof into the attempts by the IAEA or
17 the efforts by the IAEA to set up these standards to make it
18 consistent, if you will? And the second question is, and
19 it's kind of related and it gets back to the public
20 understanding of this issue, because I don't think that
21 we're going to get any place until we get the public's buy
22 in: does the public really understand that we import
23 materials, equipment that is accepted from foreign countries
24 on a daily basis that are derived from recycling of
25 radioactive scrap metal? Does it make any sense for us to

1 be setting up standards that may even be more rigorous or
2 less rigorous than those that are set by foreign countries
3 that make materials that come into this country?
4 MS. STINSON: That's a good --
5 MR. ADAMS: I think that, you know, just the time
6 to make things consistent, I think, is going to be key.
7 MS. STINSON: Good question and comment. And Don
8 will address perhaps your IAEA; maybe, Gwen, from the State
9 Department, might like to address some of the import/export
10 issues.
11 MR. COOL: Okay, thank you. The U.S. Government,
12 as a whole, is trying to work very closely with other
13 governments and the International Atomic Energy Agency to
14 look at this issue, to look at the loss source, orphan
15 source issue, because they really, as I -- several of you
16 have mentioned, do have quite a lot of interface. Gwen
17 Bower of the State Department nearly sole job these days is
18 an organization called the International Radioactive Source
19 Management. It's a federal government interagency group,
20 headed by the State Department, looking at these exact
21 issues, interacting with the IAEA. In fact, representatives
22 of IAEA will be in the United States, I think maybe next
23 week, if I have the dates right, interacting with the
24 various federal agencies on some of the activities that they
25 have going on and how the federal government can both assist

1 in that process and inform that process, so that we stay
2 informed and so that we can provide what we are learning
3 here in forums like this and in the technical activities on
4 the IAEA and other processes.
5 MS. STINSON: Gwen? And then we'll come back to
6 Ed and Val.
7 MS. BOWER: And it is going to be next week
8 actually, when those folks are going to be here. We're
9 going to have some lengthy discussions about coordinating
10 our efforts for theirs.
11 MS. STINSON: Your name and affiliation again?
12 MS. BOWER: Oh, I'm sorry, Gwendolyn Bower,
13 Department of State. But, I do think that perhaps those
14 from NRC and EPA can further address some of the issues
15 about coordinating clearance standards, because I do know
16 that there are some efforts to at least consult with the
17 IAEA and work together with them. I think one of the issues
18 we have to look at is: are we going to preempted by a
19 standard set by the EU and don't we want to actively engage
20 in the process early and come to the table and make sure
21 that we have our issues addressed, as they're going through
22 and setting what they consider to be international
23 guidelines. And we probably want to be involved early with
24 that.
25 MS. STINSON: Ed and then Val. Yeah, EU, being

1 the European Union, of course.

2 MR. REITLER: Ed Reitler from Westinghouse.

3 Addressing the question as to whether materials would be

4 dumped on the public, as a result of any rule making, I

5 wrestled with this question myself, as a health physicist,

6 ever since I heard about the rulemaking. I can only answer

7 for my facility and myself, as a health physicist. I happen

8 to have among my responsibilities, responsibilities in the

9 area of contamination control and pre-release of materials

10 from our plant. We currently comply with a regulatory

11 guide, the 1.86, which is part of our license. It's, also,

12 a Nuclear Regulatory Commission regulatory guide.

13 As part of that regulatory guide, this concept of

14 ALARA. There are limits for release -- prerelease of

15 materials; but, as an overriding concept in that regulatory

16 guide is that materials must be decontaminated to as low as

17 reasonably achievable. As a health physicist at the

18 Westinghouse Longrich Fuel Plant, I comply with that

19 concept. I would hope that the NRC would, also, incorporate

20 ALARA into any rulemaking that would apply here.

21 We release materials at a very small fraction of

22 the Reg. Guide 1.86 limits, mostly because of the ALARA

23 concept. As a health physicist, I promote that at our

24 facility and I would hope that every other nuclear plant

25 would, also, continue to maintain that philosophy on release

1 of material, irrespective of the text of the rulemaking that
2 the NRC comes up with.
3 MS. STINSON: Okay, thank you. Val, let's make a
4 comment. We'll let John make a last comment and then take a
5 break before we turn to the next subject.
6 MR. LOISEL: Well, I just -- Val from Armor. I
7 just want to lend some sort of a consensus. There may be
8 concensus in this room among several parties, but certainly
9 between myself and Mike Matea from ESRE on the concept that
10 this train doesn't go anywhere until we build the public
11 confidence on the issue and with the public perception
12 equals the reality.
13 MS. STINSON: Okay, thank you. John?
14 MR. KARNAK: John Karnak, EPA, in case somebody
15 doesn't know that yet.
16 MS. KAGAN: We just have to do it every time, even
17 if we know.
18 MR. KARNAK: Okay. I just wanted to add a little
19 bit to what Gwen said and just provide a little bit more
20 update for those of you who may be interested. We are
21 working -- the U.S. agencies are working with the
22 International Atomic Energy Agency with a document called,
23 "Tech Doc. 855," which is a preliminary document dealing
24 with release of materials and we've been working with them
25 for about close to a year now to update that document.

1 Unfortunately, when we get into the international arena, if
2 you think politics are bad in the U.S., they are 10 times
3 worse there. And when 855 first came out, it tended to be a
4 consensus document, which means it wasn't really based on
5 any good science; it was kind of a conglomeration of
6 everybody's -- but, you didn't hear me say that.
7 What we've done, I believe, in the U.S., is to
8 bring some science to bear on that process and they've been
9 looking at the technical work we've done here in the United
10 States, and we do have an opportunity to help to encourage
11 that standard -- the revision of that standard to go in the
12 direction to be consistent with what we are doing. Bear in
13 mind, however, we are one country out of 140 that are
14 dealing with this, so what we want and what we do isn't
15 necessarily what's going to happen.
16 I just want to, also, mention that in this case,
17 we're dealing with a standard for release of material and
18 this material can go worldwide, unlike many of the other
19 standards we deal with. You know, standards for a power
20 plant affect the power plant and the people directly around
21 that real estate. So, there's a real difference between
22 standards for clearance -- release of sites or cleanup of
23 sites or dealing with medical sources used in the United
24 States and that sort of thing, where typically we tend to be
25 a little more conservative than some of the other countries;

1 whereas with this standard, it's going to really be
2 affecting everybody pretty much equally, because of the fact
3 this material does literally move around the world.
4 MS. STINSON: Okay, thank you. Thanks to
5 everyone. That was a really helpful opening discussion. I
6 have 10:20 right now. Be back and ready to go with the next
7 discussion at 10:35. Thanks and coffee is complementary
8 from the hotel, so help yourself.
9 [Recess.]
10 MS. STINSON: I think we're ready to start the
11 next section. We're going to ask Trish to open it up with a
12 few comments and then proceed in a similar fashion,
13 questions of clarification and discussion. Trish?
14 MS. HOLAHAN: Okay, thank you, Barbara. Well, I
15 think some of the points that I'd like to get into some more
16 discussion of in this session is -- we've already touched on
17 in the first session, and, again, I look forward to
18 continuing what we're getting. But, what the overall
19 question is, is: how does what we are discussing today fit
20 into the overall picture? And I think we've already heard a
21 little bit of this; but, the first question is: what types
22 of solid materials and what NRC licensees are we talking
23 about today?
24 Well, I think, as Steve had mentioned earlier and
25 what is in the issues paper indicates that NRC has developed

1 the technical background information and is continuing to
2 develop further information on metals, concrete, and soils,
3 metals to include steel, aluminum, and copper. But, as I
4 say, there is information on concrete and then, also, soils.
5 And these are materials that are present at or used in
6 license facilities. This includes equipment, piping,
7 furniture, etc.
8 But, a question is: what other materials should
9 be considered and should other materials be considered now;
10 or should we address certain materials currently and then
11 continue to look at other materials, such as wood, glass,
12 sewage, sludge, further down the road? Most of these
13 materials will have no radioactivity, we heard that this
14 morning; although, some materials can have activity, either
15 on the surface or throughout the material. The amount of
16 the radioactivity depends on the materials location or use
17 and, also, the different types licensee types.
18 Most of NRC's licensees are users of sealed
19 sources, in which the radioactive material is encapsulated.
20 This includes a small R&D, research and development
21 facilities, industrial users, gauges, radiography cameras.
22 And as I say, those would typically have no contamination
23 associated with them, because the material is encapsulated.
24 Other licensees, to include the power reactors, as
25 well as the non-power reactors, research laboratories,

1 hospitals, manufacturing and distribution facilities would
2 generally have material that will fall into one of three
3 categories. They'll have areas that will have no
4 contamination. This could include clean or unaffected
5 areas, equipment in clean warehouses, hospital waiting
6 rooms, university office areas, metal ventilation ducts in a
7 control room in a reactor.
8 Secondly, there'd be process or storage areas that
9 may have materials with small amounts of radioactivity, and
10 these would be low because of contamination and control
11 procedures, and would include certain lab areas, certain
12 reactor buildings.
13 Finally, in the third one, it's not on the slide,
14 but it's material that's used for radioactive service, where
15 you can get activation and could generally have higher
16 levels of radioactivity and wouldn't be considered as
17 candidates for either release, as we're discussing here. As
18 I say, currently, there's about 100 reactors at NRC licenses
19 and then there's about 800 facilities that includes labs and
20 universities and medical institutions, as well as about
21 1,000 hospitals and clinics, in addition to the broad scope
22 facilities.
23 The next question, then, is: what is the
24 potential dose that we're talking about. We've had
25 discussions going back and forth as to what is the criteria

1 and how does that compare to the dose that's received from
2 other radiation sources. Well, as laid out in the issues
3 paper, one of the alternatives discusses potential dose
4 criteria of .1, 1, or 10 millirem per year above background,
5 or zero above background -- that is no dose above
6 background.
7 Well, when we say background, what types of doses
8 are we talking about? How does that compare? Well, as many
9 of you may know, we're surrounded by radiation and the
10 average U.S. natural background is on the order of about 300
11 millirem per year, and I'll get into that a little bit more
12 in the next slide, and it varies from about 100 to 1,000
13 millirem per year. NRC's public dose limit has been set at
14 100 millerem per year and that's the limit at which we
15 believe the public is adequately protected from licensed
16 activities. The diagnostic x-ray is on the order of about
17 40 millirem and a round-trip coast-to-coast flight is on the
18 order of five to 10 millirem. So, those of you that may
19 have come here from the west coast would be getting a dose
20 of radiation.
21 In addition, it's currently allowed that the dose
22 from the use of recycle -- I'm sorry -- the dose from the
23 use of caleche recycled into concrete blocks is on the order
24 of 10 millirem per year, and that's a material that NRC does
25 not regulate, but it is currently allowed. Also, the NCRP,

1 the National Council on Radiation Protection and
2 Measurements, considers one millirem to be what they term a
3 "negligible individual dose," and that's the boundary below
4 which the dose can be dismissed from consideration in the
5 risk calculations. This number of one millirem is, also,
6 consistent with what IAEA and the European Community has
7 established as a criterion for exemptions and for release
8 for limited quantities of material.
9 I mentioned that I would discuss a little bit more
10 the annual dose to the U.S. population. And in this pie
11 chart, we can see that the majority of the dose is from
12 Radon. And, again, we put on here that it's about 200
13 millirem per year, the total dose of around 360; but, it
14 does vary and it varies depending on where you live and the
15 types of ground structures that your house is built on.
16 Also, there are naturally occurring -- and I
17 apologize that we weren't able to clearly delineate that,
18 but the Radon, food and drink, soil and building materials,
19 and cosmic, are all naturally occurring sources of radiation
20 dose that we're all exposed to on an annual basis; the food
21 and drink being that which we eat primarily from potassium
22 40 or potassium that's in the environment. As I said, the
23 soil and building materials, again, depending on whether or
24 not you live in a brick home versus a wood home, you would
25 get a higher dose of radiation just from the building

1 materials. The cosmic radiation from space would, also,
2 vary across the country, depending on the altitude of where
3 your home is above sea level.
4 Then, there are other manmade sources of
5 radiation. Those include, as already mentioned, medical,
6 both x-rays and nuclear medicine procedures; consumer
7 products, including smoke detectors, watches, clocks, and
8 other sources; and then other, which would include remnants
9 from fallout radiation and other sources of radiation
10 throughout the country. So, as I say, this is sort of an
11 estimate, but it does vary considerably, depending on
12 location, lifestyle, and your activities.
13 The next question that we got into a little bit
14 earlier is: how does this relate to what are other
15 countries doing, other agencies, and the states doing, with
16 regard to the control of this material? As I mentioned
17 earlier and John, also, addressed, that EPA sets generally
18 applicable standards. However, EPA is not considering rule
19 making at this time, although they have completed technical
20 studies on the environmental impacts of recycling. However,
21 they are working with IAEA, Department of State, and other
22 federal agencies, looking at the issue of setting guidelines
23 for import and export of contaminated materials or products.
24 As I mentioned, NRC and EPA does have, and is continuing to
25 have, coordinated efforts in this area.

1 Another federal agency, the Department of Energy,
2 also, operates facilities that are facing similar issues
3 regarding the disposition of solid materials, and they have
4 developed criteria for release of material, which is
5 contained in a DOE order. And there are criteria in there
6 consistent with the existing NRC guidance that we've, also,
7 mentioned earlier and the Reg. Guide 1.86.
8 In addition to what the federal agencies are
9 doing, it's, also, important to look at consistency with
10 standards set by other nations and the international
11 agencies, because of the import and export issues.
12 Different standards could create confusion and economic
13 disparities in the international trade. Currently, the IAEA
14 and European Commission, as well as individual nations, are
15 setting standards. The IAEA has draft standards that are
16 containing clearance levels for individual radio nuclides,
17 and the European Commission plans to implement a one
18 millirem per year standard by May of 2000.
19 Also, in terms of the states, individual states
20 have responsibility -- let me step back a moment. NRC sets
21 standards for atomic -- material that's regulated under the
22 Atomic Energy Act or material that is part of the fuel cycle
23 or produced in a reactor. Individual states set regulations
24 or standards for naturally occurring material, as well as
25 material that is accelerator produced. There are 31 states

1 that have assumed the regulatory authority from NRC and we
2 refer to these as "agreement states."
3 All states have the authority to approve the
4 release of materials that are not regulated by the NRC and
5 the agreement states can, also, approve release of AEA solid
6 materials. There is an organization of state radiation
7 agencies that has established a committee to look at the
8 issue of control of solid materials. And similar with the
9 international efforts, it's important to look at the need
10 for consistency among state standards, so that materials
11 available for use in a state could be generated in another
12 state from where it was released. So, we need to look at
13 the overall issue of the need for a consistent standard.
14 And at that point, I'd like to, again, turn it
15 over, to open it up for discussion and perhaps focus a
16 little bit on the international, as well as the state
17 efforts on this issue and other questions that may come up.
18 MS. STINSON: Great, thank you. Any questions of
19 clarification? Anything you saw in the slides or heard in
20 Trish's opening that gave rise to questions? Mike?
21 MR. MATEA: Mike Matea, with ESRE. How does --
22 let's take a hypothetical of one millirem per year. How
23 does that equate to what you will measure, if you're
24 standing in front of something that's being released, that
25 is being released at the one millirem per year exposure? I

1 put a detector on it, what am I getting?

2 MS. STINSON: Can you answer that, Trish, or you

3 want to --

4 MS. HOLAHAN: Yeah, I'm going to turn it over to

5 Tony, to address that.

6 MR. HUFFERT: Tony Huffert, NRC. Bob, please jump

7 in, since you're the project manager responsible for the Nu

8 Reg. 1640. I'll try to answer your question, Mike.

9 You have to translate the dose to radio nuclide

10 concentration levels. So, what we would measuring is not

11 dose at one millirem here; we'd be measuring radio nuclide

12 concentrations. Nu Reg. 1640 provides a method for

13 translating does to radio nuclide concentration and vice

14 versa. As Don Cool pointed out earlier, we do not have a

15 firm number established. That's part of this whole process.

16 Nu Reg. 1640 is based on one millirem per year, because

17 that's a fairly easy unit to change to three, four, five

18 millirem.

19 If you take a look at the values in Nu Reg 1640,

20 they do differ from those in Reg. Guide 1.86, and I'll talk

21 about that in the next section. So, what you have to do is

22 go to Nu Reg. 1640 and take a look at the values of radio

23 nuclide concentrations at one millirem per year and see if

24 your detectors can measure that. And it is over -- it does

25 vary from Reg. Guide 1.6.

1 MR. MACK: If I may follow on -- I'm Bob Mack from
2 NRC. You'll hear early tomorrow morning that the answer to
3 most questions is it depends. And once again, it depends on
4 what radio nuclides you're specifically talking about. You
5 may measure zero, because you simply can't detect it with
6 ordinary equipment or at, you know, a distance of a meter or
7 whatever -- how far you would typically stand. Or it may be
8 some small fraction of 100, you know, small fraction being
9 10 millirem or less. I'm not saying exactly what it would
10 be, but it would be, you know, low like that per year, not
11 per hour. So, it would be a very low dose rate, so it would
12 be difficult to measure.
13 MS. STINSON: Did you have a follow-on, Mike?
14 MR. MATEA: I guess the follow up --
15 MS. STINSON: You have to use a mic, I'm sorry.
16 MR. MATEA: I guess the follow up is, Tony --
17 MS. STINSON: Mike Matea, again.
18 MR. MATEA: -- what you're saying is that it
19 depends on the radio nuclide that is there, as to what you
20 would measure, if it was released, that one millirem per
21 year of dose?
22 MS. STINSON: It sounds like they're saying yes.
23 Other questions for Trish -- questions of clarification,
24 before we move onto exploring some of the issues? Yes, Val
25 and the Randy.

1 MR. LOISEL: Val, Armor. One clarification from
2 the outset, in a hand held instrument that reads millirem
3 per hour -- you know, I want Michael to hear this.
4 MS. STINSON: Mike Matea, if we could just have
5 you -- he's going to answer, at least from his perspective,
6 some part of that.
7 MR. LOISEL: In your garden variety hand held
8 instrument, which reads an MR per hour, not MR per year,
9 you're clearly well below the scale of detectability. You
10 won't see it.
11 MS. STINSON: Okay. Randy and then --
12 MR. CLARK: Randy Clark with Westinghouse. My
13 question really relates to that. I look at the practical
14 aspects of trying to clear equipment in the field and I
15 guess my question is to these experts is: do we have hand
16 held instruments that can do this or is this
17 state-of-the-art laboratory equipment, which, in most cases,
18 is not practical for large volumes of equipment clearing?
19 MS. STINSON: Paul?
20 MR. GENOA: Yeah, Paul Genoa, NEI. One
21 clarification or point I'd like to make on Trish's
22 presentation. Earlier, you were sort of building categories
23 of equipment, from no contamination to potentially highly
24 contaminated. And you just made a statement that, you know,
25 it's not expected that those materials would be covered

1 under this type of a clearance. And, certainly, without
2 treatment, they couldn't be. I guess I just want to make
3 the point, is that there are opportunities within a licensed
4 condition or structure or a licensed facility to pre-treat,
5 decontaminate, whatever you want to say, materials that, in
6 fact, may have very high levels of radioactive material
7 associated with them. But, because of the type of the
8 material they are, they are easily decontaminated to levels
9 that would, in fact, perhaps approach absolutely clean, and
10 you may not even be able to determine that there's any
11 radioactivity there.
12 So, I just didn't want to leave the impression
13 that all materials -- or certain classes of material would
14 never be appropriate under this. Certainly, the point is,
15 when you're all done and you have to apply a criteria,
16 that's the test. You may take steps between its current use
17 and that test, such as decontamination.
18 And I guess I would comment, to help you
19 understand that the structure -- and the gentleman up here,
20 we are very interested in a practical criteria that can be
21 implemented in the field. We are very fortunate,
22 radioactive material is a unique material, has unique
23 properties. Fortunately, we've learned how to get benefit
24 from many of those properties. And one of the reasons we
25 can control it, because we know if large amounts of

1 radioactivity is not controlled properly, it can be harmful.
2 We know that we need to control it properly. Fortunately,
3 technology has given us the tools to measure this material,
4 at extremely low levels, at levels most people would
5 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
8 far, that you need what we would call forensic science to
9 determine, in fact, that no licensed material is present.
10 It does become burdensome. It would not allow this
11 gentleman up here to make a criteria on his crane that is
12 acceptable without undue burden, well below the benefit --
13 risk benefit that you would have to deal with. So, there
14 needs to be a translation. Scientifically, we know how to
15 do it; but, ultimately, ending up with screening factors
16 that allow you to do that in the field is a challenge,
17 recognizing that the world is a radioactive place to start
18 with.
19 MS. STINSON: Are there questions of clarification
20 or are we ready to move on to discussion? Art?
21 MR. PALMER: Yeah, if I could -- Art Palmer, ATG.
22 If I could just split an issue here just a little bit. The
23 dose consequence doesn't have to be the same for all
24 scenarios. Now, you could certainly have a one millirem per
25 year dose consequence from recycling and perhaps a 10

1 millirem per year or decommissioning standard 25/15 for
2 disposal. But just -- you could customize it a little bit.
3 MS. STINSON: Let's -- if you can keep that
4 particular suggestion in mind, when we get to talking about
5 alternatives and different regulatory approaches, we
6 probably would like to elaborate on that.
7 Other questions for Trish? Let's go back to the
8 first slide, which is where we are. Materials -- other
9 materials that either -- well, comments on any of these
10 materials, as suggested, but other materials that should be
11 included, kind of building on some of the earlier comments
12 of today. Paul?
13 MR. GENOA: Yes, Paul Genoa, NEI. And while I
14 recognize that the original basis document tackled the
15 readily identifiable materials that most likely represent
16 maybe the easiest things to go after and perhaps those that
17 have the most consequences, you know, metal, concrete --
18 metal, three types, and concrete. In fact, for a clearance
19 standard to be practical from our perspective, it needs to
20 cover all materials that would leave a nuclear facility,
21 because we have to apply a criteria. And we'd like that
22 criteria to be consistent. .so that's why we do like the
23 concept of a dose-based standard, recognizing there are
24 implementation issues that have to be worked out. So, we
25 would like to see a standard cover all materials and we

1 understand that, you know -- that puts a challenge, a burden
2 back on you to try to develop an appropriate basis for that.
3 But, we think that basis is out there and available.
4 And I was hoping that to end the discussion of
5 what goes on today, that we would -- I know you're trying to
6 paint a picture of how this fits in with what the NRC
7 currently does to protect public health and safety. And I
8 think it's important to sort of get on the record, the ways
9 that radioactive materials are controlled day-to-day in our
10 environment, and see how this release issue fits into that,
11 because, in fact, radioactive materials are permitted for
12 release by facilities in waste water or ventilation air and
13 exhaust. Materials are exempted from regulatory control, if
14 they are at low quantities, limited quantities for use and
15 sources and other applications. There are radioactive
16 materials that are allowed out into the public in articles
17 and instruments, like the smoke detectors you mentioned.
18 There are no controls on these materials once
19 they're out in the public, so they end up in our landfills
20 and they end up in recycling and they end up in other
21 places. People that are treated with nuclear medicine at
22 hospitals are allowed to be released from the hospitals at a
23 certain point. There are still radioactive materials
24 associated with their body and their selves and their
25 clothing and everything else. That has to be reflected. A

1 certain amount of radioactive materials allowed into sewage
2 effluence that go to public treatment. That is out in the
3 environment. Radioactive material is released from
4 facilities under a variety of criteria. Certain facilities
5 are allowed to incinerate their ash -- or their trash.
6 There are effluence from that, that are safely controlled.
7 Some of that ash and some other materials that are not
8 incinerator are allowed for disposal at landfills.
9 So, what I'm trying to do is make sure that
10 there's a broad understanding of the range of applications
11 and controls, which I believe are safe, that are currently
12 implied by the NRC on -- and by agreement states, on the use
13 of radioactive materials. But, they are quite wide, quite
14 broad, and represent a bit of a challenge. If you want to
15 go out and separate one activity, independent of all those,
16 and exert certain controls on it, you run into trouble, such
17 as being able to verify that material found somewhere, say,
18 a landfill, is, in fact, from one licensee or another
19 licensee.
20 MS. STINSON: Thank you, Paul. Other
21 perspectives? Other reactions to either what you see here
22 suggested or other materials that might be incorporated?
23 Vince?
24 MR. ADAMS: Vince Adams, Department of Energy. I
25 just want to go back -- the questions are related to this

1 slide here. I just want to go back to Mike's question
2 again, because I think it's a key question that we've got to
3 address. I mean, the question keeps popping up every single
4 day. Here, you're attempting to set a standard of, let's
5 say, one millirem per year. How are you going to convince
6 John Public that you are able to measure to that level? It
7 doesn't make sense to that person or individuals that you're
8 setting these standards, but you can't tell me or convince
9 me that you are able to measure to these standards. And I
10 think it's a key question that I get from time to time.
11 MS. STINSON: Maybe somebody who has some
12 experience with working with either members of the public at
13 your facilities or elsewhere, in making this translation
14 from dose to a national measurement of exposure. Other
15 issues? Other questions?
16 MR. LEMASTRA: No, to answer that -- to answer
17 your question -- Tony Lemastra, AISI. Assuming that the
18 data in Nu Reg. 1640 is good and valid, if you look at
19 energetic gamma emitters and assuming that the surface and
20 the volumetric concentrations that are presented in Nu Reg.
21 1640 are valid, taking that data and using the calculation
22 model for a large mass of material, you will be able to
23 detect using today's state-of-the-art scrap monitors, the
24 portal scrap monitors, anywhere from about 14 to I think as
25 high as 21 of the radio nuclides that have a decent gamma

1 emission at the Nu Reg. 1640 level.

2 So, to answer Mike and to answer -- was it Vince

3 -- Vince, if Nu Reg. 1640 is based on a one millirem per

4 year public dose limit, then when you back calculate to

5 concentrations and set your concentrations for release, if

6 you have a sufficient mass, a few several tons, five, ten

7 tons of material in a vehicle and that material emits gamma,

8 then you will be able to detect it.

9 MS. STINSON: Mike?

10 MR. MATEA: Is that because of --

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

12 MR. MATEA: Mike Matea from ESRE. Is that because

13 of the -- because it accumulates and that's why you detect

14 it, whereby if you were to be issuing a ton at a time, you

15 wouldn't detect it; but if you put 10 tons in a container,

16 then the cumulative causes a detection?

17 MR. LEMASTRA: Tony Lemastra, AISI. Yeah, it's a

18 function of both the mass and the concentration. Obviously,

19 the higher the concentration, the less mass you need; but,

20 you definitely need a sufficient mass, and that's probably

21 going to be in the range of a couple tons right now.

22 MS. STINSON: Other issues associations -- oh, I'm

23 sorry, Vince.

24 MR. ADAMS: Vince Adams, U.S. Department of

25 Energy. Does the Nu Reg. carry procedures for making sure

1 that they have a physicist technician who is measuring,
2 capture what you just said, to make sure that they are doing
3 the correct measurements --
4 MS. STINSON: Go to Mike, Bob --
5 MR. ADAMS: -- that deflect?
6 MS. STINSON: Bob Mack from NRC can address that.
7 MR. MACK: Yeah, Bob Mack, NRC. I'd like to back
8 up just a little bit from your question, Vince, to Tony's
9 and to emphasize that Tony's comments had ingrained in it an
10 assumption that if you assumed one millirem per year as a
11 standard, then thus and so. One of the first points that
12 I'm going to be making tomorrow morning is that the Nu Reg.
13 is a tool and does not assume a standard. But for he
14 purposes of comparison, one needs to make some kinds of
15 assumptions like that and that's reasonable to do, as Tony
16 did. But, I wanted to emphasize that that was an assumption
17 and the NRC has not made a dose level, at this time.
18 Now, with respect to Vince Adams' question. The
19 Nu Reg. h as stopped short of implementation procedures. It
20 simply is a tool for assessing doses, and I'll explain more
21 of that in the morning. But, it does not go into
22 measurement and implementation, per se.
23 MS. STINSON: Vince, go ahead.
24 MR. ADAMS: Vince Adams, U.S. Department of
25 Energy, again. I guess the overall arching question is:

1 should we -- when we're considering -- or when the NRC is
2 considering a standard, shouldn't there be, also, trying to
3 consider the technology that goes along with it? To the
4 public, again, it doesn't make sense to tell the public that
5 one millirem per year does is safe, when you cannot convince
6 the public that you're going to be able to measure one
7 millirem per year dose. And I think that's the overarching
8 question: how do you tie technology to the standard that --
9 I mean, you can't separate the two.
10 MS. STINSON: Anybody have thoughts on that? Go
11 ahead, Steve, and then we'll go to Art.
12 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. That
13 is something that does need to be addressed. If we proceed
14 with this rule making, that has to be done. That's part of
15 the implementation phase. That's part of the regulatory
16 guidance that would have to be issued with the rule. If we
17 came up with a standard, it has to be able to be implemented
18 throughout the industry.
19 Now, over the years, we've talked about being able
20 to do practical surveys, hand held instruments. Part of
21 this potential standard here may involve the use of more
22 sophisticated radiation instrument. I mean, that -- if we
23 come up with a value, let's just say .1, that drives your
24 detection threshold much lower. If we come up with a one
25 value, it escalates. So -- but, that is -- I mean, we're

1 still at the very early phases here. If this rule making
2 progresses, then there are milestones that would have to be
3 developed, to come up with the instrumentation standards
4 needed to implement this. So, it is in the plan, but we're
5 still at the very front end of this standard. So --
6 MR. ADAMS: Vince Adams, again. I guess I'm --
7 MS. STINSON: Can you use the mic, get you on the
8 transcript.
9 MR. ADAMS: I guess what you're saying, then,
10 there's a possibility that you can establish a standard and
11 you're not going to be able to measure it.
12 MR. KLEMENTOWICZ: I don't think that would be
13 realistic. I don't see how we could establish a standard
14 that could not be implemented. That would be like writing a
15 rule -- a law that no one could abide by.
16 MS. STINSON: So what you're saying is that the
17 detectability and the equipment that we'll use will factor
18 into the analysis, at some point?
19 MR. KLEMENTOWICZ: That would have to be factored
20 into the analysis.
21 MR. ADAMS: Well, is that part of this rule making
22 process here, in factoring the technology? What I thought I
23 heard you just say is that this here if the first phase, you
24 want to establish a standard and try to come up with a way
25 of implementing it. Is that what you said?

1 MR. KLEMENTOWICZ: Pretty much, yes.

2 MR. ADAMS: Okay, suppose --

3 MR. KLEMENTOWICZ: But, let me just point out,
4 even at very low concentrations, the radiation detection
5 instrumentation technology has advanced significantly from
6 the old hand held GM detector. That's still pretty much a
7 standard throughout the industry. There are -- at scrap
8 yards, they use very sophisticated beta scintillation
9 detectors, you know, $100,000 pieces of equipment that
10 detect very low levels. Now, at power reactors, they will
11 buy a $50,000 germanium detector, which is extremely
12 sensitive, and detects down to environmental levels, to see
13 worldwide fallout. It's my opinion that the radiation
14 technology, the instrumentation is already available .

15 We can argue about the word "practical," you know.
16 Yes, it's really nice to buy a two hundred or three hundred
17 dollar GM detector, but we do have to consider the overall
18 safety standard of clearance of material. And if the levels
19 are such that we have to do away with GM detectors, well,
20 maybe that's the way it's going to be. An dos, then costs
21 -- that's' part of the consideration, the cost of this
22 instrumentation to balance with the ability to clear
23 material. But, this is all in the whole mix.

24 MR. ADAMS: But what I -- I think the point I'm
25 trying to make, to me anyway, it doesn't make sense to try

1 to set up a standard, but you're not sure whether you're
2 going to have some -- have an instrument to measure at that
3 level, because when you set up a standard, what you're
4 telling the people is this here is safe level. You can't go
5 back after that and say, well, guess what, we do not have
6 instrument to measure this level.
7 MR. KLEMENTOWICZ: Right, that needs to be
8 considered as part of this entire process.
9 MS. STINSON: Trish is going to wrap up this last
10 interchange.
11 MS. HOLAHAN: I just want -- Trish Holahan, NRC.
12 I just wanted to say that, yes, you -- those are all sort of
13 very valid concerns that we are looking at, as part of this
14 whole process. And the whole issue of the implementation
15 and how we would actually do that would be considered
16 throughout, as Steve mentioned.
17 MS. STINSON: So, it sounds like --
18 MS. HOLAHAN: And we are looking for input and
19 comment on the detectability and needs, in terms of the
20 instrumentation.
21 MS. STINSON: So, it sounds like, Vince, it's not
22 a sequential thing, where you can't go back and revisit the
23 original precepts. Art?
24 MR. PALMER: Yes, just real quick comment, as far
25 as what can and can't be seen at one millirem per year.

1 Straight up, you can't see one millirem per year with hand
2 frisking instruments. I don't think there's any instrument
3 that will do that, that's out there. Secondly, you can,
4 however, see mixed fission, mixed activation products very
5 reliably with large counting instruments, either, you know,
6 similar to segmented gamma counter or large area detectors,
7 anthracene detectors, or something like that.
8 MS. STINSON: Okay. Other comments? Randy,
9 you've been waiting a while, and we'll go to John.
10 MR. CLARK: Randy Clark with Westinghouse.
11 Following up on that, we certainly have to have reasonable
12 instrumentation capability to measure. But, there's another
13 side of that, also, and that deals with some of the
14 literature I read here, in terms of dose calculation, talks
15 about end pathways and defining all the reasonable pathways,
16 which this -- which the public can be exposed to this
17 material, which is part of a normal analysis. You know,
18 you've got a matrix of pathways versus exposure and you
19 calculate it all out.
20 And I'm a very practical guy. I'm an electrical
21 engineer; I'm not really a scientist. But, I sell equipment
22 to people. And every time I do one of these deals -- we
23 rarely have a piece of contaminated equipment, but when we
24 do and I want to clean it up, the first question that I ask
25 is: how much is it going to cost me and how much time is it

1 going to take. And they -- and I say, give me a scope of
2 work, give me a cost estimate, because these things are not
3 free. Even on the simplest basis, we've done a gamma
4 spectroscopy, in order to prove that a well was thorium,
5 which is normal welding material, rather than contamination.
6 We've been a lot of places and they all cost us money, and
7 sometimes $50,000 for something that wasn't worth much more
8 than that.
9 And my point is that if I get into a practical
10 situation and dose calculation and pathways and I have not
11 only do the calculation, get the scientific data behind it,
12 show the matrices, argue and present the matrices between --
13 before my internal people and external regulators, too,
14 forget it. I ain't going to go there. It's going to go to
15 the waste stream. I'm going to say, hey, guy, that piece of
16 equipment is not available for sale. So, there's a
17 practical side to it, so what happens to it? I think we
18 need to keep in mind that the way stream is where it goes.
19 You know, if we can't do things reasonably, we can't detect
20 it, we've got -- where we have to go to the laboratory 50
21 percent of the time to measure that rate, if it's
22 impractical, it's not cost effective, it don't happen and
23 all you do is push it to the waste cycle.
24 Thank you.
25 MS. STINSON: Good, thank you. I, also, want to

1 make sure we turn our attention ultimately to the last
2 slide. We'll take the comments in order, I think John and
3 then Ray. But, do people have any thoughts about
4 consistency with international standards and what's going on
5 with IAEA or other activities. John?
6 MR. KARNAK: Just making two real quick
7 assumptions. When I think about one millirem per year and
8 thinking about the state-of-the-art detection systems that
9 are at recycling facilities, whether they're scrap yards or
10 whatever the type facility it may be, steel mills, whatever,
11 these detectors don't measure in millirems or microrems per
12 year. Well, you do that math. They measure per hour. And
13 when I break down millirem per year, we're talking about,
14 what, 2.7 or so microrems per day, which is, what, a little
15 over -- I can do it in the math right -- a little over a
16 10th of a microrem per hour. And I'm not sure that we can
17 measure that with a most sophisticated system that's out
18 there today, in a 10th of a microrem per hour, assuming that
19 the whole load, of course reads a 10th of a microrem per
20 hour. But, I haven't heard anything in any of the meetings
21 about setting dose rates over a period of one time. All
22 I've heard so far is one millirem, or whatever the limit is
23 going to be per year. I think we, also, need to address
24 what is going to be per hour.
25 The second comment is I think we need to be real

1 careful, because there is a tremendous amount of competition
2 in recycling and steel, foreign steel coming into the U.S.
3 and competing with the U.S. market. As far as a carbon
4 steel being recycled, I don't think it's even a hiccup, if
5 all of it gets recycled or none of it gets recycled. It's
6 not going to affect -- it's not going to have an economic
7 impact, as far as raising or lowering the price of scrap
8 metal or steel, except for public perception, which may be
9 reality, as we stated earlier.
10 But, I think we have to be careful in the areas of
11 nickel and copper and things like that, which are not sold
12 by the ton; they're sold by the pound, which can have a
13 significant economic impact, if we don't have a limit in the
14 U.S. and the limit is passed in the IAEA, so that that
15 material now comes into the U.S. and competes with ours.
16 MS. STINSON: Any responses to Ray's first
17 question?
18 MR. LEMASTRA: Yeah, Tony Lemastra, AISI. Part of
19 the problem of looking at a dose-based number, millirem per
20 year, and then taking that and back calculating to millirem
21 per hour, micro rem per hour, pico rem per hour, is that
22 you're not dealing with what the -- you're not dealing the a
23 flux. And a flux is the number of gamma rays that are
24 coming out of the material. It's true that if you had a
25 source that was emitting at a rate of .1 microrem per hour,

1 you'd never measure it with the equipment. But, when you
2 deal with a massive material that's putting out so many
3 decays per second and those gamma rays are going out, your
4 detectors are essentially measuring that. And, yes, if you
5 take -- again, using all the assumptions that I said before,
6 based on the Nu Reg. data, if you have a mass of, say, five
7 tons of material that's contaminated at that limit, you will
8 definitely detect it, based on the one millirem -- again,
9 assuming that the one millirem is valid.
10 MS. STINSON: Okay. Dick, I think, has a comment
11 in the same area.
12 MR. DUBIEL: Dick Dubiel, with Millennium
13 Services. We're a consulting firm here in Atlanta that does
14 a lot of surveying, for purposes of release for
15 decommissioning activities.
16 There is obviously some confusion that I've noted.
17 There's an interest in measuring down at the one millirem.
18 And I think in the discussions tomorrow, I would expect that
19 the concepts of 1640 kind of flushed that out. 1640 gives
20 an opportunity to turn the one millirem per year, which is
21 without question a number that is very difficult to measure
22 using dose rate instruments, into activity levels, in terms
23 of surface contamination and either DPM or Becquerel's per
24 hundred square centimeters, or some unit of surface area, or
25 pecocuries per gram.

1 What it really boils down to is the licensee who
2 is trying to eliminate the material, is going to be forced
3 to come up with a program of measuring down to contamination
4 levels. Those contamination levels are, then, able to be
5 converted to a dose, to a maximum, or worse case, recipient
6 through calculations. And I think it's always been
7 important to me to recognize that we have to go the
8 calculations, because the values are so low, they are
9 virtually impossible to measure on a unit of time, an hour,
10 a minute, etc.
11 But, I, also, want to point out that in terms of
12 the monitoring, I've done a review of 1640. I do not want
13 to say that I have validated all of the computer codes, but
14 I believe they have been run through the mill and are
15 probably pretty good. The values that 1640 promotes, in
16 terms of surface activity or volumetric contamination, at
17 one millirem, are absolutely values that can be seen. I
18 think that if we were to implement today on a one millirem,
19 that the monitoring industry would be -- go through an
20 evolution. We would modify our practices slightly. It
21 would not have to be a resolution. I think if we went to
22 .1, it may start approaching a revolution. I think the
23 thing that is most concerting to me, though, is when we
24 start looking at values that -- let's say, zero, because I
25 don't know what zero is. Zero, to me, is nothing detectable

1 above background. And one of the things I found through the
2 last few years of measuring -- literally taking upwards of
3 10 to 20 million measurements, is that background is not a
4 number. It is a spread of numbers. It has both spacial and
5 time variability. And I think the most difficult thing that
6 the industry is facing is when we're faced with numbers of
7 either zero or none detectable, background makes that
8 opportunity to measure virtually impossible.
9 MS. STINSON: Other comments in this area? Ed and
10 then we'll -- I'm sorry, Ray, we missed you a while back.
11 MR. RAY TURNER: Ray Turner, David Joseph Company.
12 A very important and valid point, in helping you understand
13 a little bit about how the detectors at the steel mill work
14 -- not just steel mills, but whatever the recycling facility
15 it may be, they are constantly reevaluating and measuring
16 background. And I've asked the question numerous times,
17 what is background.
18 In a San Francisco meeting, I had a discussion --
19 off the record discussion with Andy Wallo, and he's telling
20 me some of the material that's being remelted could
21 essentially come in as much as two-and-a-half times below
22 background. Now, here's what can happen. You picture a
23 scenario of rail car or a truckload of material, where the
24 front half is loaded with normal everyday scrap or materials
25 that's recycled everyday, and the back half of that shipment

1 is loaded with material that's been cleaned up to
2 two-and-a-half times below background, that now becomes your
3 new background and it will cause the detectors to allow only
4 good material, the everyday recycle material.
5 MS. STINSON: Thank you. Ed, and back to Norma.
6 MR. REITLER: Ed Reitler from Westinghouse. I
7 think it's important to realize that as health physicists,
8 we're not asked to go out and measure a truckload of scrap.
9 We can't do it, particularly in the uranium fuel fabrication
10 plant. What we're asked to do is clear materials much
11 further upstream than that. For example, I quoted Reg.
12 Guide 1.86 a few minutes ago, "the requirements of 1.86 are
13 you will survey equipment such that all areas of that
14 equipment are accessible for survey." We survey it, from a
15 contamination turn point, in terms of disintegrations per
16 year, per hundred square centimeters. And we release that
17 specific piece of equipment based on that criteria.
18 We're not asked to go out and measure bulk
19 quantities of material. And I would trust that other
20 facilities work the same way, even the reactor facilities.
21 They survey individual pieces of equipment pre-release.
22 Then, it goes into a larger pile.
23 Speaking for the uranium industry, I've gone
24 through 1640, made the calculations. And at one millirem
25 per year, based on 1640, we can measure at the micro level,

1 at the specific steel we're asked to survey. We can survey
2 and pre-release that material to verify that based on the
3 scenarios of 1640, the critical does groups and population,
4 based on the uses of that steel, concrete, copper, whatever,
5 that we will be below one millirem per year.
6 MS. STINSON: Thank you. Norma, pick a
7 microphone.
8 MS. ROGERS: Norma Rogers, Allied Signal. I've
9 got three things. I had to write them down; I couldn't
10 remember them all. Number one, what about natural uranium?
11 And I agree with the steel people, you know, you can have
12 natural contamination that would go through and their
13 detectors would never see it.
14 Number two is the cost effectiveness of replacing
15 all these instruments. In my particular business, if I've
16 go to buy $100,000 instrument, then I'm going to have to cut
17 steel up into little bitty pieces to slide underneath it,
18 forget it; I'm going to dispose of it. And the question to
19 the NRC is: are you going to take the case-by-case
20 scenarios of the past, that are already out there on various
21 materials that are being released today, and look at those
22 circumstances, to determine these types of doses that you're
23 going to maybe apply to this ruling?
24 MS. STINSON: Trish, you want to address that last
25 question?

1 MS. HOLAHAN: Let me start. Trish Holahan, NRC.
2 I think as part of this overall effort, I think we can say
3 that we will look at what we are doing now and you'll hear
4 more when Tony gets into the case-by-case, that much of this
5 is done through licensing and so, a decision is made. But,
6 all the technical information that we do have, we would look
7 at as part of the overall effort.
8 Tony, would you like to expand on that?
9 MR. HUFFERT: Tony Huffert, NRC. The question
10 came up, are we going to be looking at past practices when
11 we develop new criteria. I can't really speak to Nu Reg.
12 1640. That's Bob Mack and he'll be dealing with that
13 tomorrow.
14 We talked about soils earlier today and the effort
15 that NRC has underway to look at soils. Currently what
16 we're doing is we're doing a fairly extensive review of the
17 literature, to see how soils are used. Now, this might
18 sound a little bit silly, we all know that soil is all
19 around us, but the concern we have is how can people get in
20 contact with it, if it were free released from a facility at
21 a one millirem or ten millirem or .1 millirem level. We
22 were looking at past practices that have occurred on NRC
23 licensed facilities. And we're, also doing a very extensive
24 literature search with the Natural -- I'm sorry, the
25 U.S.D.A.. Their soil library is the largest in the world.

1 We're taking a look at scenarios that they will come up
2 outside the nuclear industry, to see if might be affordable
3 to us. So, that's the kind of research we're doing right
4 now, for just one material that's not in Nu Reg. 1640.
5 Does that answer your question of what you're
6 looking at?
7 MS. STINSON: Okay. Anything else on this issue?
8 I do want to make sure we get a little time to talk about
9 international standards, consistency, and that whole array
10 of issues. Mike?
11 MR. MATEO: The question is: are there studies or
12 will there be studies that looks at, let's say the
13 hypothetical one millirem release; that not just looks at
14 that material exposing individuals, but looks at the
15 material being melted or being fabricated, in such that
16 there's accumulation. So that if you were just going to
17 keep it at the one millirem evenly distributed, if such
18 could ever be achieved -- but what happens if you take tons
19 of the one millirem evenly distributed and you melt it, do
20 you then create a base metal that accumulates this material
21 and then goes into consumer products that has a higher dose?
22 MS. STINSON: Do you want to address that, Tony?
23 MR. HUFFERT: Tony Huffert, NRC, again. The
24 question can be broken up into two pieces: is there going
25 to be a buildup and, also, will people have multiple sources

1 that they're going to be exposed to. Does that -- is that
2 what you're heading on?
3 The NRC is looking at both. We are working with
4 some contractors to look at both of these effects. Nu Reg.
5 1640 did not take that into account directly, but we're
6 looking at it now.
7 MS. STINSON: Paul and then Gwen?
8 MR. GENOA: Paul Genoa with NEI, and a couple of
9 comments related to this detectability issue and the
10 challenge of taking a dose based standards that allows you
11 to compare apples and apples across the whole horizon and
12 then developing an implementation for that, which really
13 basically is concentration values for various radioisotopes,
14 and they're not all gamut emitters. So, we have a whole
15 range of isotopes that need to be dealt with.
16 Fortunately, we have a lot of tools at our
17 disposal. As was pointed out, there are sensitive detection
18 instruments. There are a ratioing technologies that can be
19 used to determine what these hard to detect are, and that
20 has been routinely used. But, there becomes a range of
21 implementation problems and difficulties the more the
22 numbers are lowered. The closer you get to -- the smaller
23 subset of natural background fluctuations you have the
24 greater the problem you're going to have to deal with. So,
25 I empathize with comments that along with developing a

1 standard, we have to recognize that there's an
2 implementation that needs to be done and needs to be
3 practically implemented, in a way that the public can
4 understand and deal with.
5 That brings me to the second part of this, which
6 is that linkage, which has been talked about, is a pathway
7 linkage. And the one specific issue you were concerned
8 about, if you set a standard and these metals are released
9 at this standard, could there be a concentrating factor.
10 And the answer is, yes, it can concentrate in certain areas.
11 So, you don't set the standard on the metal; you set the
12 standard on the worse concentration situation, such as the
13 bag house dust or the exposure to the driver, and you
14 analyze it in the worse case. So, I think we're going to
15 hear about that from Bob Mack tomorrow and how that's done.
16 So, it is being considered. But, that's a very important
17 point.
18 The real key I want to make out is that the
19 assumptions that link the dose to the concentration are
20 extremely important. We, as scientists and engineers, we
21 tend to make back of the envelope bound in calculations,
22 sometimes absurd in their conservatism. And if we're not
23 careful, we can result in a standard that is not practically
24 implemented.
25 Your point, an example, is if you took the 1640

1 values at 100 percent of the release criteria over an entire
2 truckload, well, understand, that's how you would -- you
3 would go through analysis. The truth is you could never
4 release material at 100 percent of the activity over the
5 entire surface area of the material and accumulate it into a
6 truck and get it to your facility. There are practical
7 limitations that would stop that from ever happening. So,
8 it's important when we develop the assumptions, that we
9 understand the linkage between those assumptions and reality
10 and how much conservatism is built in. And that is a
11 challenge.
12 MS. STINSON: One last -- okay, Gwen.
13 MS. BOWER: I didn't know if we were moving into
14 the international aspect of this.
15 MS. STINSON: We are ready.
16 MS. BOWER: Following up on what was just said,
17 if, in fact, we are going to be in the front of working with
18 the IAEA in establishing criteria, then we, also, need to
19 bear in mind that an organization like the IAEA has a
20 responsibility to respond to all of its members state. And,
21 in doing so, if there is a discussion as to whether we can
22 actually have the capability to detect some of these levels,
23 then what about some of the other countries that are member
24 states of the International Atomic Energy Agency? And we
25 have to give some consideration to the implementation of

1 regulations in those countries, as well, and how that will
2 come back and affect us.
3 MS. STINSON: Gwen, do you want to offer any of
4 your insights, as to what some of the issues -- the
5 difficulties are going to be there with some of those other
6 countries?
7 MS. BOWER: Well, I think, they're very much the
8 same as they are here; but, you know, cost effectiveness
9 takes on a new meaning in Uganda. So, these are some --
10 they are very much the same issues, but not nearly on the
11 same scale as what we are dealing with here. The technology
12 level is not going to be the same. The cost effectiveness
13 is going to mean something different to those folks.
14 MS. STINSON: Mike and then Bob.
15 MR. MATEA: If I could just follow up on the
16 comment that I made a few moments ago, because I think this
17 might -- for those who have the potential or the possibility
18 or the probability of receiving this material, I think the
19 issue goes not to what is the release value, because that
20 will only make sense if you're releasing a plate and
21 structural that will ship to a construction site and be used
22 as plate and structural.
23 In the reality, when you issue material, let's say
24 metal of any kind, if it can't be used in the exact form
25 that it's being released, it then has to go to a steel mill

1 or a copper smelter or a aluminum smelter, to change it into
2 something that can be then reused. And before it gets
3 there, it has to go to a scrap recycler, who puts it in a
4 form that the steel mill or the copper smelter can use. If
5 that material then is melted and there is accumulation of
6 material in the rebar or in the rods or in the structural
7 steel that they put out, then that's going to change the
8 scenarios. You may have put out one millirem, but what is
9 getting put out by the steel mill or the scrap -- or the
10 aluminum or the copper smelter, that's the real issue, when
11 they take all this material and melt it and create it into a
12 new usable product.
13 So, if we don't have the studies that says, you
14 take one millirem contamination and you melt 10 tons of it,
15 what you're going to come out on the backside is x, then the
16 release values, unless you're just simply going to be
17 releasing it for specific use, those type -- that type of
18 information really is of no use to private industry, because
19 they don't want to know what you've given them; they want to
20 know what's going to -- what they're going to be giving the
21 public. And if you're giving them one millirem, which you
22 consider is safe, hypothetically, but they're going to
23 accumulate that one millirem in a melt and it's going to
24 come out as 10 millirem, because it's accumulative value for
25 certain radioisotopes, the people who are releasing it is

1 off scott free and the steel mills and the recyclers and the
2 copper smelters and the aluminum smelters, they're the ones
3 left holding the problem, which goes back to the whole
4 concept of sealed sources. You know, we're always the one
5 left holding the bag and having to be contending with the
6 cleanup and the PR problems.
7 MS. STINSON: I think that's a clear description
8 of your concern. Maybe some folks can address it. Did you
9 want to elaborate first?
10 MR. LEMASTRA: Yes. Bob, let me just --
11 MS. STINSON: Your affiliation, Tony, thank you.
12 MR. LEMASTRA: AISI. I'm not an expert on Nu Reg
13 1640, but I've looked at it. What was done was to look at
14 what an acceptable dose to the public might be and then
15 looking at three different metals, which were taken strictly
16 to be examples of what might occur, plus crushed up
17 concrete, then looking at all the scenarios, if we take the
18 metal, melt it, look at the bag, dust, how much ends up
19 there, how much ends up in the metal, how much of what might
20 occur plus crushed up concrete. Then looking at all the
21 scenarios, if we take the metal, melt it, look at the bag
22 house dust, how much ends up there, how much ends up in the
23 metal, how much ends up in the slag, and then take the
24 metal, make it into whatever, automobiles. Make it into --
25 I don't think anybody looked at it or at least didn't

1 describe it, but let's make plate and make a ship out of it
2 and then have some sailor with a bunk next to it. Take the
3 dust. Look at all the different ways that the dust could be
4 either used or disposed of. Take material, put it into a
5 municipal landfill. Take the slag, use is it in all
6 different ways and then kind of see which one is the worst
7 case, then take that, go back and say how much radioactive
8 material could be on the surface or volumetrically involved
9 and still not reach that level.
10 So in a sense -- I am not saying that real
11 scientific studies were done, but in a sense that is what
12 that document attempted to do was answer your questions.
13 SPEAKER: And since Bob Mack is here and prepared
14 to talk specifically about the NRC intentions behind it and
15 analysis behind it, we will let him build on that.
16 MR. MACK: Right. Thanks, Tony, for that.
17 Tomorrow morning we will go into a little bit more
18 detail about that but yes, indeed, in our analysis we were
19 aware that some of the radioactivity could partition to the
20 slag or the bag house dust and so on.
21 We did take that into account in the analysis, and
22 tomorrow I will have a little more time to explain in detail
23 what we from a regulatory approach do with that kind of
24 information.
25 Now it may not qualify as a scientific study but I

1 think it is high on the range of technical analysis and the
2 data that went into those analyses were gathered from
3 sources in the industry itself and those data are referenced
4 and cited in the document, so hopefully the entire study --
5 it is the intention of the entire report to be transparent.
6 You know where it came -- all of the data came from.
7 Did I introduce myself? Bob Mack --
8 SPEAKER: Yes.
9 MR. MACK: Okay. I had an earlier comment. You
10 had mentioned that you wanted to talk about the
11 international point and I think I can offer some specific
12 things that the NRC is doing that may stimulate some
13 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
16 now, four and a half or five years, we have been
17 coordinating closely with the EPA's technical analyses for
18 dose assessment and their parallel document to the
19 NUREG-1640 is their TSD, Technical Support Document, that
20 was published in 1997.
21 We continue to coordinate with the EPA on that,
22 and so in addition to that, we have for a number of years
23 coordinated with the international community through the
24 IAEA in terms of the development of the tech doc that was
25 referenced earlier, 855, and those levels, and we have as

1 well as EPA submitted our technical analysis to the IAEA,
2 the International Atomic Energy Agency. We do attend
3 meetings with them and some of those meetings are joint
4 meetings with key members from the European Union.
5 It is a dynamic process. Europe hasn't settled on
6 all of the clearance criteria, however the European Union
7 has issued Recommendation Number 89, which covers metals,
8 and as Trish mentioned earlier, the member states are
9 obliged to pass legislation that would adopt those metal
10 levels, those levels for clearance for metals in May of
11 2000.
12 The point is why is the NRC interested in doing
13 this. We have also been represented on the ANSI N-1312
14 Working Group and voting, so stepping back from an NRC rule
15 there is a recognition that what the NRC does has impact on
16 other entities within the country -- for example, state
17 regulators, for example the application of the ANSI
18 standard, and another example the import or export from this
19 country.
20 There is an interaction. The NRC is aware of it
21 and it is a concern that, you know, the Commission is going
22 to have to deal with, so with that, what are some of your
23 thoughts? The Commission has limited authority over its
24 licensees but yet we recognize that there is a broader
25 ripple effect, if you will, so I will just stop there.

1 SPEAKER: Thank you. Paul.

2 MR. GENOA: Yes. Paul Genoa, NEI.

3 This is related to the international efforts. I
4 think it is extremely important. The perspective I would
5 like to give is the implementation of a clearance rule -- it
6 goes on today. We all clear materials every day and we use
7 various criteria, and it is burdensome. That is why we
8 think there should be a change.

9 We think it is difficult the way it currently goes
10 on, but we are a rich nation, right? We have lots of
11 resources. We can spend lots of money doing these things.
12 But the whole world isn't that way, and I am concerned that
13 fundamentally what we are doing today I don't believe will
14 be adopted in depth by the rest of the world. I don't think
15 they see -- I think they look at health issues as being very
16 important.

17 I think public perception is a luxury that we are
18 sitting here talking about, how far below a health effect
19 are we really going to deal with to make it acceptable to
20 the public, and I think that is going to be a real challenge
21 internationally because they are more interested in the
22 practical implementation of getting things done and so we
23 have a luxury that we are dealing with here and I think we
24 have to keep in mind that other member states, international
25 organizations are going to be trying to deal in more

1 practical terms with how to get this material cleared or
2 controlled as is appropriate.
3 SPEAKER: Are there other perspectives, other
4 thoughts on these issues?
5 Anything else anyone would like to raise related
6 to the series of slides associated with Presentation Number
7 2, Session 2? Anything else on dose?
8 We will spend some more time talking about
9 NUREG-1640, understanding the underpinnings of it.
10 Anything else? Maybe we are ready for our break,
11 lunch break. Sarah, do we have a sense of restaurants in
12 the area? There is a Mexican food restaurant, Rio Bravo,
13 right across the street. Of course, they do have a
14 restaurant here in the hotel.
15 SPEAKER: I think it is a lunch buffet here -- to
16 my recollection --
17 SPEAKER: At the front desk you will find they
18 have a list of restaurants in the area and they do have a
19 shuttle, but you probably want to refrain from going too far
20 because we are going to start promptly on our return. I
21 think we are 1:30. Why don't we try to be back at 1:15 and
22 make sure we have plenty of time for all of the afternoon
23 discussions. Thank you.
24 [Whereupon, at 11:50 a.m., the workshop was
25 recessed, to reconvene at 1:30 p.m, this same day.]

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
4 hope you had a nice lunch, got to have a little sunshine out
5 there. The afternoon in a room this dark, feel free to have
6 the coffee or tea as you see fit to keep yourself alert and
7 motivated, okay?

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

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

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

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

25 MR. HUFFERT: Sure. Tony Huffert. I am in the

1 Division of Waste Management. I am a Senior Health Physicist
2 working with Bob Nelson on the technical basis.
3 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I
4 work in the Office of Nuclear Reactor Regulation. I am a
5 health physicist. I have been working in the area of
6 Material Control Programs for about the past eight years and
7 I am assisting the agency on this effort.
8 MR. HUFFERT: This session, Number 3, is how does
9 NRC currently handle the control of solid materials. For
10 those of you who have been following it in the issues paper,
11 it is Section Number A.1.3, and the title of that is,
12 "Current NRC Case by Case Review of Licensee Requests for
13 the Release of Solid Material."
14 As Trish pointed out in her discussions, the NRC
15 does have regulations for the disposal of solid materials
16 containing relatively large amounts of radioactivity. The
17 current NRC regulations do not contain generally applicable
18 dose criteria for the control of solid materials with
19 relatively small amounts of radioactivity that's either in
20 or on the material and the equipment.
21 Even though the NRC does not have such criteria in
22 place to cover the release of these solid materials, it is
23 likely that licensees will continue to seek release of solid
24 materials with small amounts of radioactivity when the solid
25 material becomes obsolete or otherwise unusable during

1 operations and when their facility is being decommissioned.
2 The NRC does have regulations that require
3 licensees to survey materials, to evaluate the radiological
4 hazard prior to the release. These are contained in Part
5 20.
6 One set of criteria that the licensees use to
7 evaluate solid materials before they are released is NRC
8 Regulatory Guide 1.86, which we discussed earlier today.
9 The title of that document is, "Termination of Operating
10 Licenses for Nuclear Reactors." We also have a similar
11 guidance document that is used by materials facilities
12 called "Guidance for Decontamination of Facilities and
13 Equipment Prior to Release for Unrestricted Use or
14 Termination of Byproduct Source or Special Nuclear Material
15 Licenses." Inhouse we call this Fuel Cycle 8323.
16 Both documents contain a table of surface
17 contamination criteria and the table of surface
18 contamination criteria do not apply to volumetrically
19 contaminated materials such as soil. They are only
20 applicable to surface contamination.
21 For some situations NRC allows releases of
22 volumetrically contaminated solid material if the survey
23 does not detect radioactivity levels above background
24 radiation levels. This is sometimes referred to as our "no
25 detectable" policy. This doesn't mean that material is

1 released without any radioactivity present. It simply means
2 that the material was not detected with the instruments that
3 were used.
4 We also evaluate specific requests for the release
5 of solid materials on a case by case basis, which is
6 discussed further on the next slide.
7 First, I would like to talk about NRC Reg Guide
8 1.86, and Fuel Cycle 8323 in a little more detail.
9 As Don pointed out in his opening remarks, this
10 document is about 25 years old. It was developed in 1974 by
11 the Atomic Energy Commission and in 1982 we came out with
12 Fuel Cycle 8323. Both of these documents have the table of
13 acceptable surface contamination levels. They were based
14 principally on the detection capability of readily available
15 survey instruments that were being used by the nuclear
16 facilities 25 years ago.
17 Some of the limitations of this guidance are that
18 it only contains numerical limits for the amount of
19 radioactivity that can be present on the surface of solid
20 materials and therefore does not apply to solid materials
21 with volumetric contamination.
22 Also, the surface contamination levels were not
23 based on the potential dose that an individual may receive
24 if they came in contact with released materials. Rather it
25 was based principally on the detection capability of survey

1 instruments.

2 In addition, both of these documents were not
3 established under a rulemaking process conducted under the
4 Administrative Procedures Act.

5 Another limitation that Trish pointed out in her
6 talk was that although surveys do provide some licensees
7 with reasonable assurance that elevated levels of licensed
8 material is not being released from their control, not all
9 licensees survey the material with the same detection
10 sensitivity. This can lead to differences in the amounts of
11 licensed material that is released and on nonuniform levels
12 of protection.

13 One option that is available to licensees is to
14 request approval of alternate disposal procedures. Under
15 this regulation licensees are allowed to seek NRC
16 authorization for the disposal of the materials with low
17 levels of surficial or volumetric contamination. This is
18 the NRC regulation 10 CFR 20.2002, which used to be 10 CFR
19 20.302. These requests typically involve the burial of
20 solid materials on the licensee's site or disposal at a
21 nearby landfill. The licensees are required to identify and
22 describe the waste, the disposal site, the pathways of
23 exposure, and the calculated doses to members of the public
24 as well as the workers.

25 The guidance that is used is that the annual dose

1 is typically a small fraction of our public dose limits,
2 which are 100 millirem per year and if a facility, being a
3 power reactor, is located in an agreement state they would
4 work with the agreement state on the approval.
5 So as you can see, the solid materials are being
6 released in the absence of NRC regulations in this area and
7 it leads to the question how much material has been released
8 so far.
9 As noted earlier, licensees are required by NRC
10 regulations to perform a radiation survey and keep records
11 of the survey results. However, the survey records are not
12 required to be submitted to the NRC and therefore the NRC
13 does not track the amount of solid materials released from
14 all of its licensees, which makes it difficult if not
15 impossible to estimate how much material has been released
16 to date.
17 We do not currently track these materials for
18 several reasons. One reason is that NRC inspects licensees'
19 Radiation Protection Programs, which includes the review of
20 survey records. Another reason is that solid materials
21 released that are made by the licensee are in compliance
22 with the licensee's programs and they are consistent with
23 existing NRC regulations and the exposures that are
24 associated with the release of solid materials are estimated
25 to be relatively low.

1 It can be said, though, that in general the amount
2 of solid materials such as metal and concrete that has been
3 released to date is small compared to the amount that will
4 be available in future decommissioning.
5 Mike, if I could pose a couple questions for
6 discussion. Talking about the current NRC approach, is the
7 existing case by case approach acceptable, and if it is not,
8 how would you like to see it improved or changed?
9 MR. LESNIK: Thanks, Tony.
10 SPEAKER: Thanks, Tony.
11 MR. LESNIK: We are going to focus on that for
12 much of this time, but just in case, let's just see if there
13 are any clarifying questions you have got about the current
14 approach. I suspect most people in this room understand it,
15 but just in case, Tony, let's just see if there are any
16 questions about that before we get on to opinions about what
17 is working, what are some disadvantages of it. Mike?
18 MR. MATEA: Let's say hypothetically that nothing
19 happens in terms of rulemaking but the reality of the
20 decommissioning effort that is out there exists.
21 What would occur?
22 MR. HUFFERT: It would depend on the dose level
23 that is chosen. If we chose a very high dose level, you
24 would have a different amount of material and different
25 survey procedures than you might have right now if you had a

1 very, very low dose level, something like .01 millirem per
2 year above background. As pointed out earlier, we might
3 have to change the way we do business and how we do surveys.
4 As a point of clarification, surveys means an
5 assessment, not just physical monitoring using a monitoring
6 instrument. It could be a calculation. It could be
7 information about process knowledge. We might have to start
8 incorporating more of that into our procedures.
9 MR. LESNIK: Tony, I think maybe the question is
10 what if there is no rulemaking.
11 MR. HUFFERT: Oh, I'm sorry. What if there is no
12 rulemaking?
13 SPEAKER: Yes.
14 MR. HUFFERT: We would probably continue our
15 current case by case approach. We would continue to use the
16 values that were in our guidance. Reg Guide 1.86 may or may
17 not be changed. I don't know.
18 SPEAKER: Bob, did you want to add something here?
19 MR. MACK: This is Bob Mack. Sorry for
20 interrupting.
21 There seems to be an echo that wasn't here this
22 morning. It is difficult for me to hear. I am not sure if
23 we can adjust that or not.
24 SPEAKER: We'll see if the sound units will help
25 on that.

1 All right. Let's stay with --

2 MR. KLEMENTOWICZ: Excuse me. I would like to

3 just elaborate on Tony's answer. This is Steve

4 Klementowicz, NRC.

5 If there is no rulemaking, next March we have to

6 report back to the Commission the status of all of these

7 meetings and comments, and the Commission will have to

8 evaluate that.

9 If one of the options is to not do a rulemaking,

10 we do have to spell out, as we already have, this patchwork

11 of policy and case by case developments, so the Commission

12 would have to tell us whether that is acceptable to continue

13 to operate that way or if they want us to do something

14 different, so if there is no rulemaking we still need

15 direction from the Commission about how to handle this

16 existing network of policies.

17 SPEAKER: That's a helpful clarification. Let's

18 go over here to Terry and then Paul. Don't forget to

19 introduce yourself.

20 MR. SIVIK: Terry Sivik.

21 MR. MACK: This has gotten worse on the sound

22 system.

23 [Discussion off the record.]

24 MR. SIVIK: Terry Sivik, AISI. I guess it's the

25 follow-up on Mike's question and I have a question.

1 I don't guess as a member of the public -- I am
2 not really certain as to what the current NRC procedures
3 are. There are some indications that material is being
4 released already and that we are already getting this steel
5 into the environment. Cranes are being released, motors, et
6 cetera.
7 I thought from the last meeting that I was under
8 the belief with respect to solid metals and materials that
9 they were being cleaned and disposed of, and not being free
10 released into the environment. Is that not -- could you
11 just -- somebody provide me with some understanding of how
12 the NRC approaches these issues under 1.86 with the various
13 materials that were being talked about here today?
14 MR. HUFFERT: Okay. I would like to separate the
15 answer into two different components. One is surficial
16 contamination. If you have, let's say, this table which has
17 Contamination on the top of it, you would conduct a
18 radiation survey using an appropriate instrument, using
19 approved procedures that are in your Radiation Safety
20 Program and you would evaluate the amount of radioactivity
21 that is present.
22 You would then compare it to limits that are
23 either in your license or that you have adopted through just
24 wholesale adoption of a Regulatory Guide, for example, and
25 if they met the criteria, it would be released.

1 In comparison to surficial contamination, if this
2 table was solid and it was volumetrically contaminated,
3 Regulatory Guide 1.86 would not apply to that. You would go
4 to other criteria that might have been developed on a
5 case-specific basis. I can give you an example of soil.
6 Under 20.2002 a licensee might come up with a proposal to
7 dispose of this material either onsite or offsite. They
8 would do a pathway analysis. They would try to determine
9 what kind of dose would be associated with this soil and
10 they would seek approval from the NRC or the agreement state
11 to release it.
12 If it was approved, then the material would be released.
13 MR. KLEMENTOWICZ: And I would like to elaborate
14 on that -- Steve Klementowicz.
15 For power reactors we have some regulatory
16 guidance and an information notice issued in 1981 --
17 Information Notice 8107 -- and it talks about this issue of
18 releasing material. It uses, it comes up with a value of
19 5000 DPM per 100 centimeters squared. That is the practical
20 survey value and so what we have as an industry that has
21 adopted that value, that was also considered to be, quote/
22 unquote, "no detectable" at the time, using the 1970s
23 technology, so it all ties together with this 1.86 also has
24 a value of 5000 DPM per 100 centimeters squared.
25 It has pretty much evolved into a de facto release

1 limit. We do not call it a release limit at the NRC. We
2 call it a detection standard -- how hard you have to look
3 when you perform a radiation survey, but the industry pretty
4 much considers it a release limit.
5 So if someone is doing a survey for surficial --
6 can't say that -- surface contamination, they would adjust
7 their instruments to have a detection capability of 5000 DPM
8 per 100 centimeters squared. They would survey this
9 material. If they did not detect any licensed material
10 above that sensitivity that would be free released.
11 Now the question you are posing, and the
12 clarification, is if you used a more sensitive instrument
13 you would most likely see something and we have run into
14 those situations where one licensee releases some material,
15 it goes to another licensee -- painting equipment, for
16 example -- that has been transferred from one nuclear power
17 plant to another. When it went to this other power plant,
18 they performed a more detailed radiation survey on the
19 incoming equipment.
20 They performed a more sensitive radiation survey
21 on the incoming material --
22 SPEAKER: Can you turn the master volume down just
23 a tad? Maybe that will help. Press on, Steve.
24 MR. KLEMENTOWICZ: Okay. So when it went to this
25 other facility that performed the more sensitive survey,

1 they detected licensed material. This resulted in a
2 violation being issued to the plant that released this
3 painting equipment. So that is why when the Commission gave
4 us the SRM last year they specifically directed us not to
5 look into a technology-based detection standard, because, as
6 we have said a few times today, that standard, depending on
7 your sophistication and how much you want to spend on
8 instrumentation, can vary all over the place, so the bottom
9 line answer is we have a detection standard. People survey
10 to that criteria, but there is radioactive material being
11 released below that level.
12 MR. LESNIK: I think this is a helpful
13 clarification because before we can get into advantages,
14 disadvantages of the current system to dive in a little bit
15 for a deeper understanding of what it is. Thanks, Terry,
16 for doing that. Paul.
17 MR. ADAMS: Vince Adams, Department of Energy
18 again.
19 MR. LESNIK: Or Vince.
20 MR. ADAMS: What does your 5000 DPM per 100
21 centimeter squared equate to in terms of a dose rate, since
22 we now are moving towards a dose-based standard?
23 MR. HUFFERT: I'll take a shot at it first.
24 Historically, Steve mentioned IAEA Circular 8107. That did
25 an estimate based on 1981 information that was available

1 that if you accumulated a bunch of material that was at the
2 5000 DPM per 100 squared centimeters or less you would have
3 less than 5 millirem per year, and that is what the NRC said
4 back in 1981.
5 Now we have updated that with NUREG-1640.
6 NUREG-1640 has a much more comprehensive assessment
7 associated with it and, to answer your question, it depends
8 on the radionuclide. It can vary from less than 1 millirem
9 to up to 15 or 16 millirem for 5000 DPM per 100 squared
10 centimeters based on the assumptions in draft NUREG-1640.
11 MR. LESNIK: Thanks. Paul.
12 MR. GENOA: Yes. Paul Genoa, NEI. I guess I
13 wanted to get back to the original question that Mike posed,
14 which is if there was no standard mechanism in place today
15 or if you decided not to do it, and the status quo reigned,
16 as we moved into the future what would that do to material
17 flow.
18 The answer is that more material would be released
19 over time, and that is because fundamentally up to this
20 point nuclear technology has moved to a certain point,
21 facilities are in operation, and some of those facilities
22 over the next 20, 30, 40 years will decommission, so there
23 is a certain amount of material that is released from
24 facilities every day during their operation but there is a
25 larger volume of material that make up the facilities

1 themselves.

2 Some of that material will stay onsite in

3 decommissioning and is covered under a decommissioning rule,

4 which is a 25 millirem standard, and that is probably based

5 a lot on the fact that it is a fixed facility in one

6 location, but much material will be release from those

7 facilities.

8 If there is a comprehensive standard that makes

9 sense, then technology will be developed as it currently

10 exists by a variety of processes around the country to take

11 those materials and where it is cost effective and prudent,

12 to decontaminate that material, to concentrate the activity

13 from that, and put it into safe isolation and disposal,

14 releasing the rest of the material as clean.

15 That benefits us in many ways. That is what will

16 happen under the current situation.

17 MR. LESNIK: Do you have another clarifying

18 question, Mike, before we move on to your sense of how the

19 system is functioning?

20 MR. MATEA: Maybe just one more follow-up.

21 Given the material --

22 MR. LESNIK: Introduce yourself again, Mike -- I'm

23 sorry.

24 MR. MATEA: Mike Matea from ISRI. Given the

25 material that is there now or projected to be there for

1 decommissioning, let's take one additional hypothetical,
2 that you, meaning the NRC, establishes a release criteria,
3 but attached to that release criteria is that the material
4 cannot be released for general use, meaning it must be
5 released to specific uses only. What does that do to the
6 flow and to the material that is there now?
7 MR. GENOA: Paul Genoa, NEI.
8 It adds some complexity but we have dealt with
9 many complex things. Currently the way a situation works is
10 at a nuclear facility, a larger facility, you will have a
11 variety of activities going on. Some are nuclear
12 activities, some are not. You will have recycled bins just
13 like you have in other facilities. We recycle paper, we
14 recycle metal, steel, aluminum -- you name it -- there are
15 bins out there. All of that is radiologically clean.
16 But some material that is free released from the
17 facility is also considered radiologically clean and
18 currently is just added to the existing bins, and that is
19 how it gets out into the recycling environment.
20 If there was an absolute moratorium on any
21 material coming out of a nuclear facilities to keep it from
22 getting into the recycled environment, that is possible,
23 particularly if it is for the material fixed within the
24 facility, but it would be a challenge and it would be a
25 burden, and it is not clear what the health implications

1 are, but it could be done.

2 The difficult part, because quite frankly, as you
3 point out, the recycle value of the iron, the carbon steel,
4 is not great compared to what is in the country, but the
5 more difficult thing is how do you deal with this
6 gentleman's crane that gets released? We are not worried
7 about the scrap value of the crane. We are worried about
8 its use and reuse as a viable tool and a piece of equipment.
9 Most likely it is clean. There may be a place somewhere,
10 perhaps inaccessible, where there is some small, trivial
11 amount of activity that you have to deal with.

12 A rational criteria would allow that to be reused
13 into the public. The question is how do you prevent the
14 subsequent recycling of the metal from that crane?

15 I think you could logically infer that if a
16 reasonable criteria was set initially to control its release
17 safely that some hypothetical secondary recycling would
18 probably not pose a risk, but I think that is the answer to
19 the question that you have asked.

20 MR. MATEA: Mike Matea from ISRI. One more quick
21 follow-up. Right now something is released under the
22 criteria of Reg Guide 1.86. Does the entity releasing it
23 have to make any notification other than to the NRC?

24 MR. KLEMENTOWICZ: Steve Klementowicz. The answer
25 is no.

1 MR. MATEA: And to go into this "no detectable"
2 policy a little more, and regarding the surveys and records,
3 the surveys -- the regulations require surveys of
4 radioactive material, areas, rooms, for the radiological
5 hazards, to evaluate the hazards to workers and the general
6 public.
7 It is a bit of an unusual situation when you
8 perform a radiation survey of a piece of equipment to be
9 removed from the facility. You are required to verify that
10 in the power reactor case there is no detectable licensed
11 material. You perform the survey. You do not detect any
12 licensed material. Therefore the material has no
13 radiological hazard and therefore a record, a specific
14 record on that piece of equipment, is not required because
15 there is no hazard. There is no licensed material.
16 Now when Tony explained about the records and the
17 surveys and the programs, that is what we inspect to. We
18 look to see that the licensee has procedures, trained
19 technicians, equipment to monitor all of this material that
20 flows in and out of the power plants, and the records are
21 usually a log book that a qualified technician was on duty
22 and that he surveyed and released, you know, five workman's
23 buckets of hand-held tools, flashlights, pipe, things like
24 that, but I don't want anyone to be confused here. There is
25 no individual piece of paper that says I released a torque

1 wrench, serial number 123. It will be a general log.

2 MR. LESNIK: I want to take a few more comments

3 here. We are starting to get Mike and Paul, I think almost

4 towards Session 5 discussion about looking at some of these

5 approaches, but I think this is helpful to frame this up.

6 Let's take a few more, just on clarifying the

7 current case by case and then let's dive in, talking about

8 pros and challenges of case by case, okay?

9 Let's go to Bob Nelson.

10 MR. NELSON: I just want to emphasize it is very

11 important that everyone understand what the current practice

12 is because anything we do in this rulemaking would change

13 from current practice, or maintain it, so it is very

14 important you understand what the current practice is.

15 This practice isn't just limited to large nuclear

16 facilities like power plants or fuel cycle facilities. The

17 practice also applies across the NRC's licensing base to use

18 material in an unsealed form. This could be at a doctor's

19 office, it could be at a pharmaceutical research laboratory,

20 it could be any one of a number of different users of

21 radioactive material.

22 Typically when we think about releasing materials,

23 we think about these larger volumes of larger licensees, but

24 the practice extends across it, so any change from current

25 practice or even maintaining the current practice, is not

1 only affecting the hundred or so larger licensees to use
2 material. We are also talking about thousands more smaller
3 facilities, so you have to look at these types of things as
4 well.
5 What do you do with the chair in the research lab?
6 So that is the level that whatever criteria is going to be
7 applied, because it has to be uniform, so thing about that
8 and understand that we are talking about a much larger scope
9 of licensees than you may be thinking about in the current
10 discussion.
11 MR. LESNIK: That is a helpful clarification, a
12 think a reminder for the group. Norma?
13 MS. ROGERS: Norma Rogers, Allied Signal.
14 I have two questions again. In considering this
15 rule changing or this -- what you are here for today. The
16 case by case that is currently done, if you change and you
17 come out with this ruling on these criteria, will that
18 eliminate a case by case situation? That is question one.
19 Question two is we have heard a lot of things
20 about changes in the NRC that's expected in the future
21 concerning inspectors. A lot of what you deal with on a
22 case by case basis now the inspectors do inspect that
23 according to the licensee's license, et cetera. If there is
24 no ruling and there are less inspectors, will the Commission
25 change the case by case regardless?

1 MR. LESNIK: So two pieces, right? One is does it
2 mean you are de facto leaving case by case potentially, or
3 can that be part of something and then the implication of
4 what you are hearing at least about inspectors related to
5 that.
6 MR. HUFFERT: I think as Steve pointed out
7 earlier, all the options are open right now. I think the
8 issues paper also states that. We are taking a look at
9 other alternatives and as far as maintaining the case by
10 case, we are going to go back to the Commission and we don't
11 know exactly what they would tell us. If they say continue
12 with the case by case basis, would they still want to have
13 Reg Guide 1.86 updated? I don't know.
14 What role does the new ANSI standard that is going
15 to be coming out in a couple months, how will that affect
16 the way we are doing business? I don't know.
17 One of the reasons why we are here today is to
18 figure out what you would like to see changed in the case by
19 case basis. Is it broken? Does it need to be fixed? So we
20 are looking for your input.
21 As far as the NRC inspectors, I can't speak to
22 that -- that is a policy question that I would offer to
23 somebody else of the NRC Staff.
24 SPEAKER: Can you restate the question again?
25 MR. KLEMENTOWICZ: I can address it for power

1 reactors. Steve Klementowicz, NRC.

2 For power reactors, as part of our new Reactor

3 Oversight Program you may have heard about. We are somewhat

4 risk-informing the inspection program.

5 I wrote the new baseline procedure -- well, not

6 alone, but part of that procedure for the inspector does

7 address looking at the Material Release Program, and that is

8 what we call the "baseline" so that will be performed by

9 whatever inspector does go to the site or the Resident

10 Inspector, so that particular component is not disappearing.

11 There may be less inspectors or less inspections but

12 whenever they do go look, they will look at that because it

13 is one of the minimum requirements.

14 MR. LESNIK: Let me suggests, folks, that we move

15 on here. Let's start talking about and evaluating, if you

16 will, or at least get your sense of the current case by case

17 approach.

18 First, let's spend a little bit of time on

19 attributes, positive things you see about the case by case

20 approach -- it's helpful for the NRC to hear from you on

21 that first. We are going to hold off on problems or

22 challenges, so first, any attributes, positive dynamics you

23 see with the case by case? Norma?

24 MS. ROGERS: Norma Rogers, Allied Signal. One is

25 we do essentially recycling of synthetic calcium fluoride in

1 our facility, which is produced down the line in our
2 process. There is a slight contamination potential there
3 with the calcium fluoride that is then used to make
4 hydrofluoric acid. So that is a very positive thing -- it is
5 taking material that could be going to a landfill, that is
6 keeping it out of the landfill and there's -- the dose of
7 it -- it has been determined by the NRC that this is
8 acceptable.
9 I think that it is a wonderful practice.
10 MR. LESNIK: How about not just the end result of
11 some of the case by case approach but the process itself and
12 how it is functioning. It would be useful to hear. Art?
13 MR. PALMER: Art Palmer, ATG.
14 About two and a half years ago I submitted a
15 D-in-D plan for a research facility, and one of the items
16 that was contained in there was a volumetric release request
17 at 90 picocuries per gram for tritium, and that took over
18 two years to get through the Headquarters and Region IV
19 review process. It was only 35 pages thick.
20 But bottom line was the only way we could get it
21 approved was to pull the 90 picocurie per gram number out of
22 that D-in-D plan. After that was pulled, then it was
23 approved at surface contamination limits of 200,000 and
24 600,000, average and maximum, so all I can tell you is
25 having been through that process, case by case through NRC

1 is a torturous path.

2 Second comment I would offer right now is that Reg

3 Guide 1.86 and FC-83 --

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

5 [Laughter.]

6 MR PALMER: No, the positive one is coming. We

7 are kind of doing a job on Reg Guide 1.86. Everybody is

8 holding their nose, going ooh, that stinks. Hey, it's been

9 very robust for 25 years. I have lived through the new Part

10 20 change and I haven't seen the incremental benefit from

11 the Part 20 revision yet and unfortunately I think I am

12 going to live through this free release standard, at least I

13 hope I will anyway, but I am afraid when I get to the back

14 end 1.86 is going to be gone and we are going to have

15 something else that doesn't work quite as robustly as 1.86

16 does.

17 Straight up -- there have been no health effects

18 from 1.86, okay? There are no -- I mean to be callous,

19 there are no bodies that have resulted from this practice.

20 It has been protective of public health and safety, and it

21 is a commonly understood basis that you can go from region

22 to region and people pretty well understand, so it is pretty

23 well standardized, and I think those are some very positive

24 aspects and attributes that we are in danger of losing or at

25 least not appreciating under the present regimen.

1 MR. LESNIK: Thanks, Art. Jim or Tom, did you
2 guys have any comments about this, the attributes of the
3 current case by case?
4 MR. KLEMENTOWICZ: I just wanted to comment --
5 MR. LESNIK: Go ahead, Steve.
6 MR. KLEMENTOWICZ: -- regarding Reg Guide 1.86, I
7 think the Commission, if the Commission though that the
8 values in Reg Guide 1.86 were detrimental to the public's
9 health and safety, it would have been pulled ages ago, so
10 what we are exploring here is that is a contamination
11 criteria and the new wave is a dose-based criteria, but we
12 hear your concern in your comments.
13 MR. LESNIK: Let's take a few more comments on
14 attributes of case by case, then we will move on to
15 challenges or problems. Mike, you have got a positive
16 comment about case by case?
17 MR. MATEA: I wish. But a question, to make sure
18 I understand. Under 1.86, and please correct me if I'm
19 wrong, if it meets 1.86 it is releasable, but if it is above
20 1.86, you must make a case to the NRC as to why it should be
21 released or how it can be released. What if something is
22 not at 1.86. We were talking about case by case. I am not
23 sure I understand that. Tony or Steve?
24 MR. HUFFERT: I will give it a shot for materials
25 facilities, and Steve, if you want to pick up for reactors.

1 1.86 has been -- the criteria in Reg Guide 1.86
2 have been incorporated into materials licenses for some
3 cases. Sometimes they will use alternatives to Reg Guide
4 1.86. The NRC Staff might have put in something lower or
5 they could have put something higher than Reg Guide 1.86 in
6 their license, so as far as it being releasable it depends
7 on what is in the license and what is part of the Rad Safety
8 Program.
9 If they want to come in for something different,
10 NRC licensees are allowed to do that anytime as far as I
11 know for an exemption or for a change from the standard
12 practice.
13 We would evaluate on a case by case basis and
14 determine whether or not it is acceptable.
15 MR. LESNIK: Steve, did you want to tackle this
16 also? -- not at 1.86. We were talking about case-by-case, I
17 am not sure I understand that.
18 MR. CAMERON: Tony or Steve.
19 MR. HUFFERT: I will give it a shot from Materials
20 Facilities, and, Steve, if you want to pick up for Reactors.
21 1.86 has been -- those criteria in Reg. Guide 1.86 have been
22 incorporated into materials licenses for some cases.
23 Sometimes they will use alternatives to Reg. Guide 1.86.
24 The NRC staff might have put in something lower, or they
25 could have put something higher than Reg. Guide 1.86 in

1 their license. So as far as it being releasable it depends
2 on what is in the license and what is part of the rad safety
3 program.
4 If they want to come in for something different,
5 NRC or licenses are allowed to do that anytime as far as I
6 know, for an exemption or for a change from the standard
7 practice. We would evaluate it on a case-by-case basis and
8 determine whether or not it is acceptable.
9 MR. CAMERON: Steve, did you want to tackle this
10 also?
11 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. For
12 power reactors we have a sightly different twist. Power
13 reactors do not have Reg. Guide 1.86 values in their
14 license, that is where we have the no detectable standard.
15 Now, it turns out the no detectable standard is consistent
16 with Reg. Guide 1.86, the 5,000 dpm per hundred centimeter
17 squared value. So we hold to the no detectable. So if a
18 licensee uses a very sensitive survey piece of equipment,
19 they should be able to see below that value. So if they see
20 license material, they can not free release it. They would
21 have to petition the NRC under this case-by-case to dispose
22 of it somehow. So that is -- it is consistent with NMSS.
23 MR. CAMERON: Paul, I am going to get Tom in here.
24 We haven't heard from in a bit and he is from one of the
25 agreement states, an inner post state, I might add.

1 MR. HILL: Thank you. Tom Hill with the
2 Department of Natural Resources, Radioactive Materials
3 Program. We have used, had licensees use Reg. Guide 1.86.
4 And to answer the question, if it is contaminated greater
5 than 1.86, it is either decontaminated so that it is less
6 than that before it is released, or it goes to a low level
7 waste disposal. And that is the way that we used it
8 previously.
9 And I guess, you know, on a positive one, as I
10 said, it has worked, the system has worked. And I am
11 thankful that we don't have to address that very frequently.
12 MR. CAMERON: Paul, you have been waiting for a
13 while, and then we will come down here to Val. Let's take a
14 few more, any kind of positive comments you want to make
15 about the current case-by-case. Then let's move on to
16 particular challenges. All right. So let's stay on this
17 topic, Paul.
18 MR. GENOA: Right. Paul Genoa, NEI, on that
19 topic. In fact, that is how material would work. Material
20 would be released from a facility, you would compare it
21 against your criteria for reactor, it is no detectable. For
22 another facility, it might be a license condition. It is
23 above that, your choice is do something to it to make it
24 below that. Dispose of it as waste or some other licensed
25 disposition pathway. Or go ahead and apply for an alternate

1 disposal request which allows you to make a case that if I
2 took this particular material, with these radiological
3 attributes, and dispositioned it in this way, burial onsite,
4 burial offsite, that the health consequences are minimal,
5 and I am asking authority to do that.
6 The regulatory agency, the NRC or the agreement
7 state would then review that and say yea or nay. And they
8 have to use some criteria to do that. And so that is how it
9 works.
10 How does it work? If I find material that is
11 significantly radioactive at one of our facilities, and I
12 cannot decontaminate it easily, it goes for disposal, there
13 is no question, or it is reused within the facility or
14 whatever. If it is a nuisance material, if it is perhaps
15 the gravel on top of the roof of an auxiliary building that
16 has trace contamination at environment levels, the same
17 cesium levels you would find out in the backyard of your
18 house, I can't say that that cesium is different from the
19 cesium from my facility, so I am in a jam. What do I do? I
20 recognize that it doesn't make sense to send several
21 truckloads of this material across country for disposal. I
22 might go to my regulator and ask for approval to deal with
23 that.
24 When I worked for Florida Power Corporation in
25 Florida, I asked the regulators for an alternate disposal

1 request under what was then 302 -- 20.302, now it is
2 20.2002.
3 The point I am getting to is, first, it is an
4 onerous process. It is difficult. It is a good idea, I
5 think it should be kept, but it is not an easy thing. It
6 can't be done every day for every type of material. It
7 takes resources on the licensee. We had to go first to the
8 state, lay out our proposal. We had to go ask for
9 confirmatory analysis by not only the state health
10 department, but by the university, to have independent
11 laboratory analysis.
12 We had to talk to the regulator. The regulator
13 reminded us that we are an agreement state, and it is up to
14 the agreement state to deal with this. The agreement state
15 didn't want to do it on its own initially, had to think
16 about it and evaluate it. Ultimately, they did the right
17 thing. But they feel like, well, geez, it would be a lot
18 easier to do the right thing if we had a national standard
19 that we can compare our analysis to.
20 And so I guess that is my picture of --
21 SPEAKER: Your segue to the problems, problem
22 component of this.
23 MR. GENOA: No, no, there is not a problem
24 component. The problem component is, yeah, we need a
25 consistent standard. My point would be, alternate disposal

1 requests, if you really think about it, or these
2 site-specific allowances that some of these licensees have
3 pointed out, really should be thought of as a restricted
4 release scenario because they are very specific and they
5 have certain end applications in mind. And I those are
6 worth considering and they should be saved, and that should
7 be future opportunities, because once you decide that it is
8 above a criteria, that doesn't automatically mean it needs
9 to go to a Barnwell like facility. There may be a whole
10 variety of tiered approaches to controlling that material
11 safely.
12 But that is not today's discussion. Today's
13 discussion is the criteria itself.
14 SPEAKER: That is helpful, that is helpful
15 background on your perspective on that, Paul. Thanks.
16 MR. CAMERON: Val.
17 MR. LOISEL: Val, Armor. Well said, Paul. You
18 took my thunder. I did want to say this about the processor
19 companies, though. If you are dealing with surface
20 contamination and you clean it to Reg. Guide 1.86, and you
21 do your whole thing, that is great. Generally, people, the
22 processors, do not take recourse to the petitioning process
23 that is described for the case-by-case scenario. But they
24 might do that, consistent with their licenses, if they
25 thought there was some sort of equivalency, you know, that

1 it is no worse than Reg. Guide 1.86 or new criteria, as
2 people are beginning to think about them today in the health
3 effects arena. But that would be the only case, that people
4 are not out there trying to exceed Reg. Guide 1.86 in
5 general.
6 And, Paul, you also reminded me about the --
7 failing of the possibilities for disposal pathways. One of
8 the key pathways we still have at our disposal is restricted
9 reuse. And a perfect example of that is the melt cast or
10 the shield blocks that GTS Durotech does. So that in your
11 basket of options of things to do, that is one of them.
12 MR. CAMERON: Alan, do you have something on this?
13 MR. CURE: No.
14 MR. CAMERON: All right. Let's move on. All
15 right. So we have talked about the case-by-case approach,
16 we have had some good conversation clarifying it, some good
17 conversation about what are some positive components. How
18 about problems, challenges with the current case-by-case
19 approach? Things either you have run into, that you foresee
20 in the future. Yeah.
21 MR. LEMASTRA: Tony Lemastra, AISI. I have heard
22 non-detectable used in a way that gives me an impression
23 that it is not the way I typically use it. To me, if I say
24 something is non-detectable, it means that I can't measure
25 anything above background. I thought I heard it used in a

1 way that says you have a level, in this 5,000 dpm per
2 hundred square centimeter. Non-detectable, the impression I
3 got was that non-detectable meant it didn't exceed that
4 number. Can somebody clarify this for me?
5 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. You
6 heard correctly. The NRC guidance that has been published
7 established how hard you have to look. That establishes the
8 no detectable standard. For surface contamination, the how
9 you hard to look is the 5,000 number. That is published in
10 that circular 8107. For volumetric material, we have a
11 policy that it is the environment, it is what is called the
12 environmental LLD, lower level of detection, lower limit of
13 detection. That is consistent with the power reactors'
14 technical specifications to perform an environmental
15 monitoring survey program.
16 So back in the '80s the Commission came up with
17 this policy, or rather the staff did, that said this is how
18 hard you have to look for something to be no detectable. If
19 you look this hard and you do not see any license
20 radioactive material, then it is not detectable and can be
21 free released.
22 So the two components, it is not detectable, but
23 the NRC has established that threshold of how hard you have
24 to look.
25 MR. CAMERON: Tony, did you want to follow up on

1 that then?

2 MR. LEMASTRA: Yeah, I would like to. Tony

3 Lemastra again. That kind of presents the problem of

4 whether we are looking at 1.86 or we are looking at

5 NUREG-1640, is that what you are calling non-detectable,

6 again, for some of the gamma emitters, in a reasonable mass,

7 let's say a couple of tons in a vehicle, will or could be

8 detectable. And, you know, I think some of the comments

9 that I heard from some of the people in the steel industry

10 are that stuff is being released that is non-detectable.

11 The way they were thinking of non-detectable was you put a

12 survey meter on it, you don't measure anything, not that it

13 is not above 5,000 dpm per hundred square centimeters. So

14 there is, you know, a problem in understanding the

15 terminology that is being used.

16 MR. KLEMENTOWICZ: Steve Klementowicz. That's

17 correct. And that is why we are trying to eliminate all of

18 these inconsistencies and to have a standard that says no

19 detectable based on 1970s technology. And we need to update

20 this to eliminate all this confusion and inconsistencies.

21 Because I agree, if someone hears me say no detectable, you

22 have to know the other part of that. Well, at what

23 threshold do you look to, what threshold do you set the

24 sensitivity of your instruments? And that has caused a lot

25 of problems, as I explained.

1 One licensee released something under their
2 program, another licensee surveyed it and did a better job,
3 did a more sensitive survey, and there was a violation to
4 the first licensee, whereas that program was found
5 acceptable.
6 So this is the type of inconsistency that we are
7 trying to eliminate by coming up with a national standard.
8 Whatever the value, we want everyone to be on the same level
9 playing field, so we don't say no detectable, we say here is
10 the limit.
11 MR. CAMERON: Bill, do you have a comment here on
12 kind of challenges, problems with the current case-by-case?
13 MR. RANES: Yeah, Bill Ranes with TVA. Just to
14 follow up, and I think that is exactly the value of what we
15 are talking about in this standard, is that it gives us a
16 standard, not some term of "non-detectable" or that you, you
17 know, that you can't see it. It clarifies the issue. We
18 are talking about a risk-based standard and that is the
19 value to what we are talking about here, is it gives us a
20 value to say this is the limit.
21 MR. CAMERON: Bob.
22 MR. NELSON: Bob Nelson, NRC. I will use an
23 example maybe to show the benefits and the problems with the
24 current approach and maybe that will fuel some discussion.
25 But take a licensee who has a contaminated building, say it

1 is concrete, steel structure, and a roof, obviously, poured
2 concrete floor. Reg. Guide 1.86 works well for a lot of
3 those surfaces, unless we have a volumetric contamination
4 problem.
5 In the case of a concrete floor, you can scabble
6 till you get, you know, down to 1.86 levels. But let's say
7 we have the roof is some kind of composite material, has
8 insulation in it, tar, shingles, and that somehow got
9 volumetrically contaminated. They want to know what they
10 can do with this roof. We have no volumetric release
11 criteria. So a licensee will come in and say, it has got X
12 number of picocuries per gram of this radionuclide. Can I
13 release it? And then we have to do some case-by-case
14 analysis.
15 The first problem that we might have is, what dose
16 standard do we apply, since we don't have one? What
17 scenarios do we use to do the dose assessment? Again, we
18 don't have guidance or firm guidance on that. And what is
19 the critical group? All the types of things you would do in
20 a site-specific dose assessment, that is not addressed.
21 If it is within the bounds of 1.86, we have got
22 something, we can make a decision. 1.86 may not be perfect,
23 but it is useable, we have used it, it works. But when we
24 get beyond that, we get beyond that guidance in the
25 volumetric contamination or to places where 1.86 might not

1 be applicable, we have -- we get into this case-by-case
2 question. I have heard a lot of questions about what is
3 case-by-case, well, here is an example of the case-by-case
4 and it happens a lot.
5 The licensee has the right to come in and say we
6 think this material is clean, it is clean enough. NRC, can
7 we release this? And we have to make a decision. So we
8 have to go through this process every time. We have to look
9 at and answer all these questions on a case-by-case basis.
10 Are all these cases consistent in their approach? That is a
11 problem. Do we apply a consistent dose standard? Do we
12 have a consistent decision methodology?
13 From my perspective, those are the kinds of
14 limitations that we have in the case-by-case. From
15 licensees' perspective, if we are doing that analysis, they
16 have to pay for it, it takes time, delays decommissioning.
17 It just creates a lot of uncertainty.
18 MR. CAMERON: Thanks, Bob. Maybe kind of building
19 on that, just pose a question. You talked about 1.86 and
20 how it works and what else. What do you foresee -- I mean
21 this is a question for some of you in particular, as the
22 rule proceeds, an increase in decommissionings and the kind
23 of volumes of material coming out, 1.86 still works,
24 satisfactory approach? Some of you have started some of
25 those activities. If you were to look ahead, what is your

1 view on that? Paul.

2 MR. GENOA: Well, to answer your specific

3 question, you said, if we were to move ahead, in current

4 terms, you know, how will that affect things? And I guess I

5 was trying to make the point that, you know, we are set.

6 Industry is established in this country to move forward, and

7 part of moving forward means decommissioning some of the

8 original facilities. So whether we have a Reg. Guide 1.86

9 criteria, or a more consistent uniform national standard,

10 you know, we are going to have make more of these decisions

11 as more material comes out. So it is going to happen either

12 way.

13 I believe Bob pointed out some very critical

14 reasons why one approach may be much less efficient than

15 another approach, and I think that is the reason for the

16 rulemaking.

17 But to give you an idea, I mean we keep trying to

18 go back to the idea -- first of all, you don't even know

19 that the material we are talking about has any -- I like

20 your term, "radiological history" associated with it, I mean

21 any license material from the existing facility.

22 So the first challenge is even determining whether

23 it does or does. That is where we want to be. We want to

24 understand that there is rule that lets us make that initial

25 determination. Once we know there is radioactive material

1 associated, at least above some consensus standard, then
2 there are options to take care of it. But just determining
3 whether or not there is radioactive material is a big
4 problem, it is not an easy thing in all cases.
5 You mentioned for decommissioning, Mike, under
6 Reg. Guide 1.86, at the Fort St. Vrain reactor, they spent
7 over $20 million just in the final survey, to prove that the
8 radioactive content was below the level. $20 million is not
9 an insignificant amount of money for a facility that has
10 already been cleaned up. No change happened before or after
11 that final survey, that was just to prove it was okay -- 20
12 million bucks. So there are significant consequences there.
13 We do, though, in license termination space, now
14 have a dose-based rule that now establishes criteria. Does
15 it put a challenge or a burden on the licensee to prove that
16 they meet the criteria? You bet. Do we need firm guidance
17 on how to do that? You bet. But we are working our way
18 through that. At least we have a goal and a structure to do
19 that. I expect the same thing to happen in release of
20 materials, and I think that we are headed in the right
21 direction. But I think it is needed.
22 MR. CAMERON: Anything else? Those of you that --
23 have you heard, have you said what you needed to say, either
24 about the current case-by-case approach and positive
25 aspects, or problems you have experienced, or you see or

1 foresee? Who have we got? Mr. Turner.

2 MR. RAY TURNER: The good looking one.

3 MR. CAMERON: Which one are you?

4 MR. RAY TURNER: The good looking one. Ray

5 Turner, David Joseph Company. This is kind of a bad

6 news/good news, I guess it is positive. I was called to a

7 steel mill in West Texas who had a contaminating event.

8 They had melted a cesium source. And they had changed out

9 all the bags, had scraped down and cleaned the bag house,

10 had changed the refractor in the furnaces. Everything was

11 essentially pristine and new. But yet five months after the

12 meltdown, they still had cesium or traces of cesium in the

13 bag house dust.

14 The state EPA had, I guess, done some scientific

15 studies or whatever and determined that there was -- I am

16 talking about tracer levels, the highest amount measured of

17 cesium in the bag house dust was 1.68 picocuries per gram,

18 in one sample. All the rest of the samples .3, .4

19 picocuries per gram. However, the state had told the mill

20 they were going to shut them down within two weeks, close

21 the doors of the facility, unless they could solve the

22 problem of the cesium in the bag house dust.

23 And when they called me to come down to the mill,

24 that is when we were able to determine that the cesium in

25 the bag house dust was coming from normally occurring cesium

1 in the background, not naturally occurring, but normally
2 occurring cesium in the background.
3 Subsequently, I had meetings with the State of
4 Texas and then went to the NRC, the DOE, EPA, several
5 meetings in Washington. We were able to establish a
6 normally acceptable level, or clean-up standard, at that
7 time for 2 picocuries per gram of cesium in the bag house
8 dust, which allowed that steel mill and, subsequently,
9 probably seven or eight more to continue to be able to
10 operate, because the bag house dust is characteristically a
11 hazard to begin with. So now we had a mixed waste and there
12 was no standard set. In addition to that, then the Reg.
13 Guide 1.86 was the clean-up standard used inside the bag
14 house on the rest of the material, which allowed those mills
15 to start back up and go back into production.
16 MR. CAMERON: Thanks. Randy. And then I would
17 ask NRC staff to think, is there anything else around this
18 topic you would like to either pose for people or issues you
19 would like to see discussed? Otherwise, we might move on to
20 break. But let's see what comments we have got here.
21 MR. CLARK: Randy Clark, Westinghouse. I hate to
22 use the term because it is so over-used, graded approach.
23 But I was wondering whether, because it almost -- it could
24 imply two standards which might not be a good idea. But
25 there seems to be at least some sentiment that, when it

1 deals with surface contamination and more straightforward
2 cases of contamination, decontamination, that 1.86 seems to
3 do a pretty good job there. And that is a standard.
4 An instrument, we don't just buy instruments
5 willy-nilly off the shelf and turn them on and use them like
6 that. They are calibrated to that 500 dpm standard, whether
7 it is beta-gamma and the alpha instrument is also
8 contaminated to the disintegration standard. So these are
9 not willy-nilly, which I think I heard a couple of comments
10 that might lead you to think that. And then use the more --
11 in those by case-by-case volumetric contamination standards,
12 to use a more regimented, systematic approach, and what I
13 hear is perhaps a lower detection standard for those
14 case-by-case, more difficult cases that have to be analyzed
15 on a case-by-case basis by the Commission. Is it graded --
16 is there a way -- this is really a question. Is there a way
17 to have a graded approach to this so that we can keep the
18 good and not throw the baby out with the dishwater, sort of
19 thing?
20 SPEAKER: I think there might be a method of
21 having a graded approach. I think the case-by-case -- some
22 elements of the case-by-case should be retained. It all
23 depends on how our Regulatory Guide would be developed, if
24 one were developed to replace Reg. Guide 1.86.
25 1.86 really wasn't geared toward free release of

1 materials, it was written for the termination of operating
2 licenses at power reactors. It contains a lot of
3 information in there. One thing, just one component is this
4 table that everybody has adopted. So I guess one of the
5 questions I would like to ask you is, what elements of the
6 case-by-case would you like to keep in the Regulatory Guide,
7 a future Regulatory Guide?
8 MR. CAMERON: Can we hear from you particularly,
9 Ray, if there are things that you think, and hear from
10 others? Grab the microphone.
11 MR. RAY TURNER: State the question once again, I
12 didn't hear the last.
13 MR. CAMERON: Are there elements of the current --
14 SPEAKER: Case-by-case that you would like to
15 retain?
16 MR. CAMERON: -- case-by-case you would like to
17 retain? You think they ought to retain as they go forward.
18 MR. RAY TURNER: I believe that I am not fully
19 enough experienced on that to make a good comment on it.
20 SPEAKER: Well, for example, 20.2002, 20. -- the
21 old 20.302, would that still be applicable for certain
22 case-specific releases? Is that a good vehicle to use under
23 clearance for unlimited material?
24 MR. CAMERON: We do have a comment here. Val. Do
25 you want to comment on this in particular? Randy, do you

1 have a comment on this?

2 MR. CLARK: No, I just want to add something.

3 MR. LOISEL: Are we clear?

4 MR. CAMERON: Yeah, go ahead. You are clear.

5 MR. LOISEL: I am Val, Armor. If we are getting

6 in the mood of retaining things, I move that we retain Reg.

7 Guide 1.86.

8 MR. CAMERON: Trish.

9 SPEAKER: Are you going to second that, Trish?

10 MS. HOLAHAN: No, I am going to ask a question.

11 Trish Holahan, NRC. I guess, and I have heard a number of

12 folks say about the good that is in Reg. Guide 1.86, and

13 maybe I can follow up on what Tony had said, is if some of

14 the individuals that would support keeping 1.86, would they

15 indicate whether there is a need to revise it or make

16 changes to it?

17 MR. PALMER: Art Palmer, ATG again. Yeah, I think

18 one of the big deficiencies on Reg. Guide 1.86 is that it

19 doesn't specifically address tritium and carbon-14. I think

20 the dose -- the 5,000 dpm per hundred square centimeters for

21 tritium and carbon-14 is, well, probably a factor of a

22 thousand too low. I think that would be one revision to

23 1.86 that would be helpful.

24 As far as the 20.302 or the current 20.2002, there

25 is a fair amount of guidance, if you dig it out, on what to

1 include on one of those kinds of applications. And by and
2 large, it is pretty good guidance. The one thing that I
3 think is missing is a real description of scenarios to be
4 addressed in the case-by-case basis, so it is left up to the
5 licensee to kind of invent scenarios. And, you know, so I
6 mean you can get from, you know, any sort of extreme from
7 where the facility or the particular equipment is buried in
8 the ocean, there would be no dose at all, to a burying baby
9 scenario, that -- you know, with all the implications there.
10 So I think that would be helpful if you spec
11 scenarios, and maybe some realistic guidance on codes to be
12 used in case-by-case scenario development or analysis, that
13 would be helpful. PG-808 is a kind of obscure document, but
14 for those that are familiar with it, I mean that is helpful
15 in using RESRAD, you know, those sorts of things. So,
16 anyway.
17 SPEAKER: Can you step up to the mike, since Chip
18 had to step out?
19 MR. ADAMS: Vince Adams, DOE. Another weakness I
20 think with 1.86, based on my experience in working with
21 folks in the field, and I am not a health physicist, so
22 forgive me if I butcher this, but is the non-standardization
23 of calibration of instrument in the field. For example, you
24 can have five different companies coming in and measure the
25 same piece of material and you are going to get five

1 different readings. Some could be twice, five times as
2 much. And the reason is because they are using different
3 standards for calibration.
4 For example, my understanding how they calibrate
5 these instruments, you take a piece of standard material,
6 for example, technetium-99, and you put it on a backing of
7 steel. And company A may use a backing of steel, company B
8 may use a backing of nickel, and you are obviously going to
9 get a different reading to calibrate your equipment. Well,
10 they are using that same instrument to go there and measure
11 all types of material. So you can get many, many types of
12 reading based on that calibration, so it is not
13 standardized, and I think you tend to lose credibility if
14 you are not, you know, if you are not coming up with
15 basically the same type of reading.
16 MR. CAMERON: Okay. Any other comments about
17 1.86? Yeah.
18 MR. GENOA: Very briefly. Paul Genoa, NEI. If
19 you decide to keep Reg. Guide 1.86, the reactors would like
20 to use that as a basis, too.
21 MR. CAMERON: Anything else, friends? Yeah, go
22 ahead, Tony.
23 MR. LEMASTRA: Going back to the non-detectable
24 terminology, what that essentially does is -- or let me back
25 up a minute. Earlier I made a comment that some things were

1 detectable by scrap monitors, and someone said that that is
2 probably not the case because we don't have everything
3 coming out at the maximum. If the practice is to set your
4 instrument so that zero detectability is at the limit, then
5 you have no real way of knowing how close to the limit you
6 are getting.
7 Let's assume that instead of 5,000, we are not
8 able to detect 4,000. We are looking at almost -- it is
9 about 1,800, a quick calculation I did was about 1,800
10 picocuries per square centimeter. It seems, from what I am
11 hearing, that we may not have the ability to say this is
12 clean, this is 200, this is 500, this is 6,000. We are just
13 looking at it and saying, whoops, over here is 6,000,
14 everything else is essentially zero.
15 If that is the case, then, again, the possibility
16 of releasing relatively large quantities of material that
17 are capable of causing alarms just all of a sudden went up
18 in my mind from what I picked up today.
19 MR. CAMERON: Steve, did you want to --
20 MR. KLEMENTOWICZ: I have a question, a follow-up
21 question for Tony Lemastra. Reg. Guide 1.86 is based on
22 concentration per unit area, a hundred square centimeters,
23 for example, and they have a maximum limit for a square
24 meter. Are the measurements that you are concerned about
25 volumetric, meaning that you are dealing with truckloads of

1 material coming in to a scrap dealer and you are taking
2 gross counts from a radiation detector, then translating
3 that on the weight of the tonnage to the activity that might
4 be recorded?
5 MR. CAMERON: Tony.
6 MR. LEMASTRA: Tony Lemastra. No, the original
7 calculations that I did were based on the maximum 5,000, and
8 it essentially looked at about five tons of material in a
9 single load. But, you know, it wasn't the whole load, and
10 it was only looking at I believe something like 30
11 centimeters from the wall of the vehicle, of where you were
12 getting the contribution from.
13 MR. CAMERON: Okay. Let's move on here. Art.
14 Then we are going to wind up this session, I think, friends.
15 MR. PALMER: Okay. Just a real quick -- I have
16 done this -- Tony, I have done this empirically, where I
17 have looked at what the detection limit was with a frisker,
18 a two inch pancake GM probe. And if you have a little pile
19 of soil with cesium contamination, cesium-137 contamination
20 in it, you are looking right at about a hundred counts per
21 minute, which equates to about 5,000 dpm, or the detection
22 limit of that particular instrument. It ranges around 50 to
23 150 picocuries per gram in that soil sample, if you do a lab
24 analysis behind that. Okay. So that is a good, empirically
25 derived number.

1 MR. CAMERON: Who else have we got? John, is it
2 you? Go ahead, Terry.
3 MR. SIVIK: Maybe I ought to not speak for the NRC
4 staff, but in industry, if my boss says to me, I don't think
5 1.86 is working, and I went out and I had some sessions and
6 said, oh, yeah, it is working, he would come back and say,
7 well, fix 1.86. And I think the NRC staff is up against
8 that wall. Their Commission has reason to believe 1.86 is
9 not working, so the staff has to look at ways to improve the
10 application of 1.86 to ensure that materials don't get
11 released, as the example that was talked about got released,
12 and then came into another facility and was determined to be
13 detectable.
14 So if there are weaknesses to 1.86, it speaks to
15 the measurement techniques, the calibration techniques, the
16 instrumentations being used, and possibly even the cleaning
17 procedures. A lot of governmental agencies dictate specific
18 cleaning procedures before you even measure. Everything
19 gets cleaned and then measured, as opposed to trying to
20 measure it first and determining that it is clean. I just
21 throw that out as food for thought.
22 MR. CAMERON: Anybody want to respond? No. Okay.
23 All right, friends. You know I think this session
24 is a good example of probably what the whole two days might
25 be about, is it is important, I think for you and the NRC,

1 to reflect on these different issues. It is important for
2 them to hear from you here in real time. But I suspect
3 after you have kind of mulled this over a little bit after
4 this conversation of these two days, you know, things might
5 come in your mind, and you are urged, you heard from the
6 opening comments, throughout today, to please, you know,
7 stay involved. You know, send in your thoughts, you know,
8 write them down. Call in, you know, get your input in there
9 in an appropriate fashion, because you may come to a more
10 subtler understanding or see an aspect, a problem or an
11 opportunity you hadn't before hearing this kind of
12 conversation. So, please don't let it stop just with
13 participating in these workshops.
14 Let's take, Barbara, if it is all right, take a
15 break till 3:00. Is that all right?
16 MS. STINSON: 3:15.
17 MR. CAMERON: All right. 3:15.
18 MS. STINSON: Yeah.
19 MR. CAMERON: A half hour break?
20 MR. STINSON: You don't need it, okay.
21 MR. CAMERON: Let's go -- 3:00, all right? Okay,
22 a 15 minute break. Grab some sunshine, grab some caffeine.
23 We will see you back for the next session.
24 [Recess.]
25 MR. CAMERON: And Tom Hill said that it was the

1 State of Georgia -- to think about during Frank Cardile's
2 presentation on some other alternatives for control of solid
3 material.
4 Yeah, Val.
5 MR. LOISEL: Before we get into Session 4, and I
6 apologize, I am going to have to disappear, but do you have
7 a mechanism for recording, something to talk a little bit
8 later, Barbara, or something like that?
9 MS. STINSON: Sure.
10 MR. LOISEL: But there are two things that were
11 given me at break time. Number one, and for things for
12 people to think about, number one is shield blocks are not
13 the solution for everything.
14 MS. STINSON: What is it?
15 MR. LOISEL: Shield blocks are not the solution
16 for everything. In other words, that is a restricted reuse
17 option and it has limited capacity. We can't make all of
18 this material into shield blocks. And the second thing was,
19 when Terry Sivik came on about fixing Reg. Guide 1.86, I
20 think the NRC needs to explain its position in the new venue
21 for risk-based, dose-based analysis and embracing that as
22 our future. I think you substantively have to say why you
23 are doing that. You know, we are all on your side and we
24 agree that is the way to go, but the community doesn't know
25 that. Thank you.

1 MR. CAMERON: Okay. Thanks, Val. And I think the
2 need for a risk-based rationale probably applies to anything
3 that we would come up with. But this session is going to
4 take a look at alternatives and what we want to make sure of
5 is that all of you understand what the description is of
6 each of the alternatives that Frank is going to talk about.
7 So after he is done, we are going to go out to you for
8 questions about those alternatives. And I think that that
9 will lead us into a process of building some new
10 alternatives through your help.
11 We have an opportunity to do some brainstorming
12 here. We have already heard some suggestions on
13 alternatives. Keep Reg. Guide 1.86. Tony Lemastra this
14 morning talked about the dedicated melt idea. And whatever
15 alternatives we get from you, we want to also make sure that
16 everybody understands those. Keep in mind that we don't
17 want to get into the process of evaluating these
18 alternatives at this point, that is going to come in later
19 sessions.
20 But we do want to make sure that we know what is
21 involved with a particular alternative. And as many of you
22 have talked about, we have different materials involved, we
23 have different end uses. The reuse, the recycle, the
24 disposal. So one alternative may not fit all of these
25 situations. Maybe you will build a solution that has a

1 number of alternatives.

2 And I think Frank is going to get into some of the
3 terminology problem. You will hear him talk about
4 restricted use. What exactly does that mean? You just
5 heard a statement here about shield blocks that was termed
6 restricted reuse. So we want to make sure that we get our
7 terminology correct, too. And I am going to turn it over to
8 Frank now.

9 MR. CARDILE: Okay, thank you, Chip, and good
10 afternoon. We have just had a lively session discussing
11 NRC's current approach for control of solid materials. NRC
12 is also examining what other approaches it could use to
13 effectively control solid materials, and has developed a
14 preliminary list of broad alternatives. For reference
15 purposes, these options, or these alternatives are discussed
16 in the issues paper in the Federal Register Notice at page
17 35095 and 35096.

18 The purpose of this session, as Chip has noted, is
19 to explain the broad alternatives, make sure that they are
20 clear, and to explore other alternatives that we may not
21 have thought of. The next three sessions will explore in
22 some detail how we would evaluate potential alternatives.

23 In the first alternative listed, NRC would
24 continue its current methods of controlling releases, that
25 is, surveys based on existing guidance. The issues

1 associated with this approach have been discussed, as noted
2 earlier in the previous session, and, as also noted, this
3 approach would continue to result in some releases.
4 To formally establish criteria for control of
5 solid material, NRC could go through a formal rulemaking
6 process with analysis of health and environmental impacts,
7 and economic impacts. In such a process, three broad levels
8 of control could be considered.
9 In the first alternative listed and discussed in
10 the issues paper, a dose level could be set in a regulation
11 below which materials could be released for unrestricted use
12 by the public. A rationale for this alternative is that it
13 would allow some productive use to be made of these
14 materials, rather than just throwing them away. In this
15 alternative, before any material is released, it would be
16 monitored to ensure that it would result in no more dose
17 than allowed. It could then go anywhere, including to a
18 scrap yard, to a steel melter and manufacturer, and then on
19 to any unrestricted use, including into consumer products
20 and industrial products.
21 Within this alternative, there are sub-options.
22 The level at which material is to be monitored could be set
23 at progressively more restrictive dose levels, including
24 those noted in the issues paper, such as 10, 1 or 0.1
25 millirem per year above background, or monitored to a dose

1 level that is no higher than, or cannot be distinguished
2 from background.
3 A second alternative would also set a dose limit
4 in regulations, but would restrict where material could go
5 to only certain authorized uses. For example, girders in a
6 large bridge. An advantage, an obvious advantage of this
7 alternative, compared to unrestricted use, would be that it
8 would make some use of these solid materials, but would
9 limit uses to those that were less likely to cause public
10 exposure.
11 To make this alternative work, it may be necessary
12 for NRC to issue a license to those persons receiving the
13 materials, for example, the scrap yard owner, the steel
14 manufacturer, so as to ensure that the material only went to
15 its restricted use. From this licensed producer, it could
16 then go on to its authorized uses, such as in this bridge.
17 And the scenario that we would envision would be somewhat
18 similar to the license termination rule that just went out,
19 where restricted use still means that the NRC license has
20 been terminated. So once this material goes -- a possible
21 envisioning here is that once this material went to this
22 licensed smelter and we were sure it was going to its
23 authorized use, then once it gets to the bridge and is in
24 the bridge, it is no longer licensed by NRC.
25 A variation on that might be that, you know, what

1 we were just talking about, what Val was just talking about,
2 where the authorized use was in perhaps some sort of
3 licensed situation like a shield block at a nuclear facility
4 or in steel drums that go to low level waste burial. But
5 those are two variations on the word "restricted use," and I
6 think that may be somewhat of what Chip was thinking of.
7 Of course, a bridge with girders in it only lasts
8 so long. And so what restricted use does, except for
9 short-lived nuclides, is to defer the ultimate decision
10 about what should be done with these materials for the
11 lifetime of the authorized use.
12 A third alternative would be to establish in a
13 regulation that solid materials from certain areas where
14 radioactive material was used or stored would not be
15 monitored, but would rather, based on the fact of its
16 specific location in the facility, not be allowed to be
17 released for either an unrestricted or restricted use, but
18 instead sent for disposal to a licensed disposal site. A
19 rationale for this alternative is that there would not be a
20 release of certain solid materials, thus removing concerns
21 associated with allowing solid materials into products for
22 public use.
23 The issues paper envisioned that this alternative
24 might apply to, for example, equipment such as steel tanks
25 or steel pipes in specific areas such as process areas in

1 the containment or auxiliary buildings of a reactor, or, I
2 think as Bob Nelson mentioned earlier today, it might apply
3 to specific furniture items like a chair in a hot laboratory
4 area in a hospital or medical facility, or research
5 facility.
6 Whether such a limitation would also make sense
7 for other areas of a facility, for example, a clean
8 warehouse or the ventilation duct work in a control
9 building, or clean waiting rooms at a hospital, or some of
10 these other materials that we have talked about today that
11 might apply to specific furniture items, like a chair, in a
12 hot laboratory area in a hospital or medical facility or
13 research facility. Here there's such a limitation, it would
14 also make sense for other areas of a facility -- for
15 example, a clean warehouse or the ventilation duct work in
16 the control building or clean waiting rooms in a hospital,
17 or some of these other materials that we've talked about,
18 other than steel in a confined -- is a matter that would be
19 open to question, and obviously open for some discussion.
20 This list that we've put up here and that we're
21 presented in the issues paper is not meant to be
22 all-inclusive. As you can see, we've listed other
23 alternatives that are proposed at these meetings or in your
24 written comments or in e-mail to us. These comments and
25 suggestions could be suggestions for alternatives that we've

1 not thought of, or they may be variations on alternatives
2 that we have thought of.
3 Each of these alternatives have pluses and
4 minuses. The purpose of our examination and the purpose of
5 any rulemaking effort is to evaluate all health and
6 environmental impacts and economic impacts in an open forum
7 and evaluate the trade-offs between the alternatives, so
8 that an informed decision could be made that protects public
9 health and safety and serves the interests of the country.
10 This examination will also examine the capability of each of
11 the alternatives to assure that the appropriate controls are
12 maintained.
13 And with that as background as to what we've
14 thought of so far, we would invite your comments and
15 questions on the list of alternatives that we've listed, and
16 also invite your sugg3estions for other alternatives.
17 SPEAKER: Okay. Thanks, Frank. As we noted
18 earlier, we're going to do an evaluation of all these
19 alternatives in some future sessions this afternoon and
20 tomorrow. And, what might be useful now is to make sure
21 that everybody understands what's included within a
22 particular alternative. Since we have this nice list, maybe
23 we should proceed down that.
24 We started to ventilate a lot on the "continue the
25 current practice" alternative, I think during the last

1 session. But are there any questions on what the
2 implications or what "continue the current practice" means?
3 Tom, I assume -- Tom, do you want to ask a
4 question on that?
5 MR. HILL: Tom Hill from Georgia Department of
6 Natural Resources. I think this is a clarifying question
7 for my mind. In the list of alternatives, and using the
8 term that I heard this morning on the radio, Lutz atoms
9 having no radiological history, the -- if there are atoms in
10 the facility that have not been associated with the use of
11 radioactive material, I do not see how regulators -- us, one
12 of those -- has an interest in that atom for this rule. So
13 it's a little unclear to me as to how that became an
14 alternative, how that wording got in this alternative.
15 SPEAKER: Well, I think it's -- let me clari-, let
16 me ask something, Frank, before you go on. Tom, you're
17 taking this to the, the third, third diamond or the fourth
18 diamond down? Okay. This, the question on the fourth
19 diamond, the fourth alternative set forth there. Go ahead,
20 Fran.
21 MR. CARDILE: We grappled, we discussed that quite
22 a bit in preparing the issues paper. And what the issues
23 paper tries to focus on is, for example, tanks, pipes, in
24 control building or, container buildings or auxiliary
25 building. Or if you have a particular piece of equipment in

1 a laboratory, a hot laboratory, and what we try to draw is a
2 distinction based on process knowledge that, for example,
3 ventilation, the duct work, the ventilation duct work in the
4 control building from your knowledge how it's used and where
5 it is probably outside of what would be considered by the
6 fourth diamond.
7 The fencing around the facility is another area
8 where obviously it's not involved in the process. So, I
9 don't -- at the moment we're not trying to more this fourth
10 bullet to areas where it doesn't belong.
11 SPEAKER: Is it possible that there, there may be
12 some interests who would want to advocate an alternative
13 similar to what Tom is talking about?
14 MR. CARDILE: That the fourth bullet would apply
15 to the site?
16 SPEAKER: To a broader area.
17 MR. CARDILE: To a broader -- I think the
18 discussion in the issues paper doesn't go there, but
19 obviously that would be another alternative that --
20 SPEAKER: That could be an alternative.
21 MR. CARDILE: That could be thrown on the table.
22 SPEAKER: All right. Bob.
23 MR. NELSON: I kind of view it as the same
24 alternative. The, under the fourth diamond you have a
25 situation where, uh, it's in this box, it's considered to be

1 contaminated and must be disposed of as low-level waste. If
2 it's in this other box, it's not and it can be
3 free-released.
4 The question in the fourth diamond is, where's the
5 line between the boxes? What is the definition of box "it's
6 contaminated" versus the definition of the box "it's not"?
7 And in the fourth diamond, that's the, in my mind, the crux
8 of the question, defining where you establish the boundary
9 so that it can be clear, the rule can be clearly
10 implemented?
11 I agree with you that we don't have any basis to
12 control stuff on the left, on my left-hand box. The
13 question is, where is that left-hand box? Where is the
14 boundary between those two boxes? And that has to be, in
15 this type of a process would have be defined for all the
16 various licensee types. Not just the power reactor, but the
17 research facility, the university, the doctors, the
18 hospital. And where is the line between those two?
19 SPEAKER: Okay. And that was Bob Nelson from the
20 NRC. And just remember to state your name and affiliation
21 for the record.
22 Let's keep going on this fourth diamond. I take
23 it that's what you want to talk about, right, Norma?
24 MS. ROGERS: Norma Rogers, Allied Signal.
25 Establish a regulation that does not permit release of

1 materials that had been in an area where radioactive
2 material was used or stored. At our facility, because of
3 the design, originally, of the facility, the restricted area
4 from NUPAR 20 incorporates my office. My office doesn't
5 have any materials in it. But the way I read that, if I
6 was, if I were going to take a chair out of that office, or
7 a file cabinet or anything, it's been in the radioactive
8 material area. So I can't do anything with that. That's
9 the way it reads to me.
10 So in order for our area to eliminate all the
11 offices from being in this with the monitoring back and
12 forth, it was not feasible, the way the plant was designed.
13 And we can't afford to go back and redesign 45 years of
14 established buildings and things like that to do this. To
15 my understanding, that fourth diamond says that the paper,
16 the chairs, the file cabinets -- it's all a loss.
17 SPEAKER: And is that -- we'll go then to the NRC
18 staff for a clarification on this. But that situation would
19 result because of the definition within Part 20 that you're
20 within the restricted area. Was the staff thinking on this
21 alternative is that area where radioactive materials is used
22 or stored, is that synonymous with restricted area? Frank?
23 Steve?
24 MR. CARDILE: All right. Let me just start very
25 quickly. In preparing the issues paper, we didn't try to

1 stay with, you know for the purposes of the issues paper,
2 since it's really just a, information gathering, put some
3 information on the table. It's not a rule.
4 We did not go to the, try to go by a strict
5 definition of what's in Part 20; we were trying to be more
6 like uh, Bob Nelson was talking about, that, all right, for
7 example, does your office, does it process radioactive
8 material? Does it, do you store radioactive material in
9 your office? If the answer is no, then probably your office
10 would fall outside this fourth diamond.
11 SPEAKER: But certainly that could be an
12 alternative, I suppose, is to define it synonymously with
13 restrict area. And then you get into all the sorts of
14 constraints that Norm was talking about.
15 MR. CARDILE: Well, and as, and as a matter of
16 fact we're looking for comments and suggestions and input
17 on, well, what is the problem with defining it in different
18 ways or putting the boundary in different ways. I mean,
19 those are great suggestions and comments.
20 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I
21 believe you understand it correctly. Now remember, that's
22 just an alternative, and there are some people who like that
23 option, that anything that ever enters the hot lab or
24 nuclear power plant will never, the only way it will be
25 disposed of is going to a low-level waste facility. So,

1 that's an option on the table for discussion purposes.

2 But I believe you have read it correctly, that

3 theoretically if that option was chosen, your desk, your

4 chair -- because it is in that area, the radiation area --

5 would ultimately go to waste under that option. But that's

6 what we want to hear your comments from. Do you support

7 that or --

8 MS. ROGERS: No!

9 [Laughter.]

10 SPEAKER: Okay. We'll, we'll get into the, to the

11 support part later. But I think that's a useful

12 clarification about what that particular option means.

13 Paul?

14 MR. GENOA: Yes, Paul Genoa with NEI. And I think

15 the last presentation explains -- one of the challenges, as

16 Frank pointed out: where do you draw the line? Which box

17 is appropriate? Is it everything within a restricted area,

18 radiation controlled area, contaminated area? You know, you

19 name it. But I think that's just part of the problem.

20 I think the other part of the problem with number

21 4 bullet is that it stops or completely removes any

22 incentive to use decontamination and material recovery. You

23 have materials that are within this facility -- and actually

24 may have very high levels of contamination associated with

25 them. This precludes any opportunity for technologies and

1 companies to develop to provide the tools to make that
2 material clean. And those tools exist.
3 We know through electro-polishing; we know through
4 grit-blasting; we know through chemical decontamination and
5 a variety of technologies that haven't even been brought to
6 bear that those materials can be made clean and released
7 safely to the public. And this kind of approach, I think,
8 is inappropriate in our country because it blunts technology
9 innovation.
10 SPEAKER: Okay, and that's a good evaluative
11 comment, I think, that we should bring up when we get to
12 evaluation.
13 Are there any more questions on exactly what
14 alternative four up here would include? Or alternative
15 three? I think Frank already raised a host of issues on
16 that right now. Gwen?
17 MS. BOWER: I had some questions on alternative
18 number three. Oh, Gwendolyn Bower -- sorry -- State
19 Department.
20 One, has there been an assessment done on the
21 additional burden that might be put on the regulatory
22 community if that is instituted, that we have this limited
23 use? Should I just go through my list of questions?
24 SPEAKER: Sure. Why don't you do that.
25 MS. BOWER: The other one, would that alternative

1 greatly increase the amount of releasable material, or would
2 it then take pressure off the uh, waste disposal community?
3 And, are we then -- if we institute alternative
4 number three, are we prepared then to assume limited-use
5 imports? And would that, would we see an increase or, you
6 know, higher levels of those types of imports?
7 And the concern, I guess for me in the work I'm
8 doing now is that, if we institute something like that, are
9 we likely to see, you know, orphaned wrenches now, instead
10 of just orphaned sources or --
11 [Laughter.]
12 MS. BOWER: -- you know, orphaned steel girders,
13 once they're set out and all of a sudden, they're not
14 accounted for. They're released to limited use and people
15 lose track of them?
16 SPEAKER: Okay. Those are, those are all good
17 questions. And I guess to answer them, you really need to
18 -- we really need to understand what's included within that
19 particular alternative. And I didn't know whether you were
20 limiting it to the restricted use that Frank described,
21 where you would use it in a bridge girder or something like
22 that. We need to put a finer point on that, perhaps.
23 MS. BOWER: That would help -- at least for me,
24 the non-scientific type. That would certainly help.
25 SPEAKER: Okay, Tony, do you want to try to help

1 us define this?

2 MR. LEMASTRA: No. No, I just wanted to make a

3 comment on three.

4 SPEAKER: Okay.

5 MR. LEMASTRA: With, with steel, from a practical

6 standpoint, we're probably looking at Cobalt 60, having one

7 of the longest half-lives of materials; it's likely to alloy

8 with the steel. In the case of aluminum, you have a whole

9 different problem where depending on how the aluminum is

10 made, you can essentially dissolve just about anything, any

11 metal into the aluminum. So you no longer are limited to

12 certain half-lives.

13 The question I would have is, what happens at the

14 end of that half-, at the end of the useful life, out of

15 some aluminum materials when, you know, the structure,

16 whatever it is, is, has reached its useful life.

17 Under three, it sounds like the NRC has

18 essentially written it off and it's now free for, for just

19 recycling to commerce. Is that true, or, or would there be

20 a continuing follow-up on it?

21 SPEAKER: Frank?

22 MR. CARDILE: As I mentioned, there's -- Frank

23 Cardile, NRC. There's the model or an example is the

24 restricted use of the license termination rule, where in

25 essence the NRC did write off or, you know, release a site

1 from, or terminate the license at a site for the reason that
2 the radioactivity would be low enough that during the course
3 of the restriction, it would decay to below, you know,
4 levels that were considered acceptable.
5 That's, as we've talked about, perhaps easier for
6 a site where the site is just right there. And you know --
7 you know, it's fairly straightforward that the stuff is
8 decaying. It's a good question. It's a question we have to
9 grapple with, that if you, if you restrict the use to a
10 certain authorized use, you have to -- and you're authorized
11 use. You have to -- and you're going to have that use be
12 unlicensed, like an unlicensed bridge, then you have to have
13 determined in advance that these are the nuclides in that
14 bridge, and at the end of a typical lifetime of that use,
15 whatever it is, bridge or something else, the levels will
16 have decayed to X, you know, some very small value. And
17 this will have to have been found in advance to be
18 acceptable.
19 Then in that case, maybe this will all work. But,
20 you know, it has to be -- the system has to be set up, and
21 we haven't obviously set it up yet, because, that's why
22 we're coming and talking about, well, what are the problems,
23 what are the questions related to something like restricted
24 use.
25 An alternative restricted use, as we've been

1 talking about, is that perhaps it goes into some alternative
2 license-type use, like a drum that you package radioactive
3 material in, or tanks for another nuclear power plant.
4 That's a little different because there it's pretty
5 straightforward. That stuff just stays under license. So,
6 those are -- as Chip was just mentioned, those are
7 variations we're thinking about. We're interested in your
8 thought and, you know, what to do with the material when
9 it's done.
10 Another question we would pose to you is that,
11 again, in the license termination rule, unrestricted use and
12 restricted use were presented as either-or. We gave
13 licensees the option. We said, you can release the site for
14 unrestricted use or restricted use. Here, we might say --
15 we might have an either-or here in which you'd say, well,
16 the licensee make the decision about whether this particular
17 piece of material would go to unrestricted use or
18 restricted.
19 Or, we could prepare, or the rule could be written
20 in such a way that says, based on, you know, perception
21 issues or issues or broad issues, that only restricted use
22 is allowed. That's a little variation to the license
23 termination rule. It's another area where we're looking for
24 comments.
25 I might just quickly go back to, I think, the

1 first comments -- and it's sort of along the same lines that
2 Gwen had. And that is, well, have we thought about the, you
3 know, how we would license or what the impact was or would
4 be on licensing of -- what it would take to license, or the
5 impact on, for example, states to license first uses, or
6 smelters or scrap dealers. That's again what we're trying
7 to do in the next few months. What are the ramifications?
8 What are the problems, so that when we go back to the
9 Commission in March of 2000, we can say to them, well okay,
10 we have this restricted use option but these are the
11 problems, etc. etc.
12 So, we're interested in your comments today and
13 again in the public follow-on public meetings. We're also
14 interested, I think, as Mike Lens pointed out, that when you
15 go back to your home locations and sit down and think some
16 more about, well what do I know about problems, not only
17 problems but potential good points about each of these
18 alternatives, let me put them down and submit them in
19 written comments.
20 SPEAKER: Okay. Thanks, Frank. We're going to go
21 to Bob Nelson and then to Mike Matia. It might be useful to
22 just label the various types of restricted use alternatives
23 here so that we can go back at some point and address all of
24 the four questions that Gwen had on restricted use.
25 MR. NELSON: Yeah, I was just gonna comment that

1 we did have four questions on the table and I'm not sure we
2 answered or attempted to answer all four of them. And I was
3 concerned that we were getting ahead and possibly not
4 addressing those.
5 I think another question that Gwen raised was,
6 would this, how would this authorized restricted use be
7 applied to imported material. So I would just caution that
8 we need to address these questions as they come up and, so
9 we don't lose site of them.
10 And the answer to that question -- we haven't
11 addressed that yet. It's probably an issue that we need to
12 look at. The international community is also looking at a
13 possible authorized first use in their clearance framework.
14 So we need to stay abreast of what they're considering in
15 that to be as compatible as possible with what they do. And
16 so I hope that answers that question as much as we can.
17 And then on authorized use, I look at it as an
18 intermediate step to ultimate clearance. So when you decide
19 -- when you look at restricted or authorized use, whatever
20 you want to call it, the analysis that you apply to that use
21 is probably identical; certainly not unlike what you would
22 do for clearance directly from the facility . You have to
23 make the same kind of determination.
24 At the end of the authorized use, it will have
25 decayed to such a level that you could release it, that it

1 would be cleared for unrestricted use. So it's the same,
2 really the same numbers. You're just installing a process or
3 a step in clearance. It's kind of a gradation of clearance.
4 But the final step is clearance for unrestricted use.
5 SPEAKER: Okay. Mike?
6 MR. LESNIK: Gwen's question did prompt the
7 thought, right now, who, who has control, or who has
8 authority over the material that has been or is
9 contaminated? And who has control or authority over import
10 material that is contaminated or has been decontaminated?
11 And I guess the third offshoot is, is there control over
12 importing finished product that was made from material that
13 was once decontaminated?
14 SPEAKER: Can we get some clarification on those
15 questions, either from the people at the table or from Stu
16 Trevy, our Office of General Counsel? Anybody want to try
17 to address that? Bob.
18 MR. NELSON: Bob Nelson, NRC. We do have a
19 regulation that addresses both export and import of
20 radioactive material. It's 10 C.F.R. Part 110. And to, to
21 export material, you would need an export license under the
22 terms of that regulation. If it is considered to be
23 radioactive -- if it has first been cleared and determined
24 to be outside of our, and cleared from our regulatory
25 control, then it would, would not need such a license.

1 It's similar coming in. If the material was
2 determined to be cleared by another nation, and we had no
3 knowledge, the receiver had no knowledge of its, its
4 content, clearly it wouldn't need an import license.
5 But there is a process for importing material for
6 recycle or reuse or even disposal. And those procedures are
7 in Part 110. You, basically, for an import have to have a,
8 an end user who has agreed to accept the material. And if
9 that were to be in an agreement state, then that agreement
10 state would have to agree that that material, with that,
11 with that import as well. So, before you could bring it in,
12 you would have to have an accepted reuse for that material
13 and a designated person to receive it.
14 SPEAKER: Does that take care of your questions
15 Mike and -- maybe Gwen, do you want to put any clarification
16 on that Mike?
17 MR. LESNIK: A follow-up, let's say. Let's say
18 the European Union goes forward with its, I guess the
19 equivalent of the 1 millirem, and we stay where we're at.
20 Does that, does that mean that anything that we import -- if
21 we were to import scrap, that we would accept their levels,
22 or would they have to be cleared at Reg. Guide 186 levels,
23 if that were to occur tomorrow?
24 MR. NELSON: Bob Nelson, NRC. I'm not sure I can
25 answer that based on my knowledge. I'd have to go back and

1 look at that. I'm not clear. So rather than speculate,
2 I'll --
3 SPEAKER: And we'll try to get you an answer to
4 that question. And we'll go to Gwen on this now. But for
5 consistency purposes, is adoption of the EU standard, is
6 that an alternative that should be recognized?
7 [No Response.]
8 SPEAKER: All right. Gwen?
9 MS. BOWER: Gwendolyn Bower, Department of State.
10 Mine was just a follow-up question to what you had said.
11 You said there needs to be an end-user. That end-user then
12 has a -- I mean, they're under all the regulations of a
13 licensee, right? So in effect, it's a de facto option 3,
14 right? If we're talking about -- is it then that they have
15 restricted use for this item and it's expected then to be
16 recycled at some point? Or is this just --
17 MR. NELSON: Bob Nelson, NRC. I really wasn't
18 trying to distinguish between material that was coming in
19 for recycle or any other purpose. IF it's radioactive
20 material that's coming in, coming into the United States --
21 I'm looking more at waste-type material now. But okay,
22 there needs to be an authorized recipient, someone who is
23 licensed to receive the material, that's authorized to
24 receive the material, and is going to use the material and,
25 for a licensed purpose.

1 Now that purpose might be decontamination and
2 clearing the material and selling it as recycled material
3 within our regulation. It may be disposal of that material
4 in a licensed low-level waste disposal facility. It might
5 be reusing the material in a licensed practice. But there
6 has to be a designated user. This prevents just, just a
7 foreign source dumping material on our shore.
8 The other point I wanted to make was, if it's an
9 agreement state, then the agreement state has to agree,
10 basically agree to that, to that same process. So the
11 agreement state would have to say, yeah, this licensee is
12 within my jurisdiction and we agree that this material can
13 come in and my licensee can use this material.
14 SPEAKER: Okay. Let's go to John Karnak and then
15 see if the agreement states have anything to say on this
16 issue. And then perhaps on this issue at least try to
17 identify some other alternatives here.
18 MR. KARNAK: John Karnak, EPA. I didn't write
19 110, but I did read it. And my understanding -- I think
20 that the important distinction is that 110 deals with
21 license materials and licensees, whereas I think Gwen's
22 point was that if, for example, something is contaminated
23 because a source was melted into a batch of metal then that
24 metal comes in, there wasn't a licensee involved with that
25 metal as it's coming into the United States. So I think you

1 have a different situation than you have with 110. If it's
2 indeed a licensee and licensed material, then it clearly
3 falls under 110. It's not quite as clear if the last person
4 that held it was not a licensee.
5 SPEAKER: Would it be -- it seems like it might be
6 helpful at some point for the NRC in writing or whatever to
7 try to clarify the answers to some of these regulatory
8 questions, to be able to understand these alternatives.
9 MR. NELSON: Bob Nelson, NRC, again. If it's an
10 import, we don't license people, users. We, the person who
11 imports the material would have to have a 110 license,
12 regardless of who's bringing it in. So what I was speaking
13 to the licensing process for the person who's receiving the
14 material. If it's contaminated material, it's waste-type
15 material, then it falls under the framework of 110 and the
16 importer, the U.S. company bringing the material in, would
17 need a Part 110 import license. But we would not issue that
18 license without those conditions being met that I mentioned
19 before.
20 SPEAKER: Okay. Quick follow-on?
21 SPEAKER: Yeah. My point was that if the person
22 bringing it in was a steel company and not a licensee, then
23 you wouldn't see it in 110.
24 [Laughter.]
25 MR. NELSON: They would still need an import

1 license, I think.

2 SPEAKER: Okay, the point that's being made is

3 that you'd never find it because the things that are coming

4 in, they're coming in without any control.

5 All right, Paul, you've been waiting patiently

6 over there. Did you want to make a comment on the --

7 SPEAKER: On the options.

8 SPEAKER: -- the options. Go ahead.

9 MR. GENOA: The question at hand. And I think

10 that, I think this last little discussion is important. I

11 think there ought to be follow-up questions. I mean, the

12 110 had State Department involvement in it at some level. I

13 think that's important. But I think the real question

14 that's being asked is, are there materials that could come

15 in from abroad that we wouldn't know about? And the answer

16 is, of course. And by having a consistent standard, it's

17 more likely we'll know about it and there's probably things

18 that can be done.

19 But my point is up here on, are there other

20 alternatives to addressing this material? And I think that

21 there is an alternative that we pointed out before, and I

22 think it's a combination of two choices up there. And

23 that's number 2 and number 3.

24 The first one is that you need to acceptable dose

25 levels that would control materials that can be released

1 from those materials. And that's really what your clearance
2 standard is. And we think that's important. We think it
3 should be consistent and so forth and dose based. But there
4 has to be some criteria.
5 But I think what marries nicely with that is, what
6 you're saying is, as soon as you exceed that criteria, what
7 are your options? Well, your option today is only one, or
8 maybe several. Keep it within a license community
9 application or go to disposal at a envirocare type facility.
10 And I guess the question is, if you have one atom more than
11 whatever your criteria is, does it automatically mean it has
12 to go to that kind of facility? And the answer might be no.
13 The answer might be that there are other restricted
14 applications that would safely allow that material to be
15 released and they should be explored. And I think there are
16 a whole range of things that we could think about.
17 The unique thing is, if you set the criteria
18 first, and if it's dose-based -- let's say one millirem --
19 that sets a boundary that allows you to evaluate restricted
20 values. Because what you're really saying is, we're going
21 to use a one millirem criteria, but we're gonna implement it
22 in the following way: we're gonna make broad assumptions,
23 as 1640 does, one what all the implications are between the
24 actual concentration, the dose pathway and the dose. And
25 we're gonna do that conservatively because we have to cover

1 all possible situations, 'cause hey, this is unrestricted.
2 Worst case.
3 Now you could envision situations where licensees
4 could come forward, as they can today under 2002, and lay
5 out a rationale that says, I propose to take this material
6 that is in fact slightly above this release criteria, but I
7 intend to impose the following restrictions on its use.
8 It's only going to get disposed of here. It's only going to
9 get reuse there. It's only going to get recycled in another
10 place. And under those criteria, you could establish
11 institutional controls, if you will, or whatever, that may
12 use the same dose standard. The worst case individual under
13 this restriction is still only going to get one millirem,
14 but we're gonna rely on institutional controls.
15 So I do see a parallel approach available to you,
16 similar to what you used in the license termination rule,
17 where you had an option of terminating a license with no
18 restrictions or terminating a license with restrictions, but
19 in fact the dose to the public would be the same. The
20 difference is, on one hand, you'd be counting on
21 institutional controls to limit the dose, and in the other
22 you wouldn't. So there's an opportunity, I believe.
23 SPEAKER: Okay, so this is a combination of
24 unrestricted and restricted.
25 SPEAKER: And it's not clear they have to be done

1 at one time. You might set one standard today and down the
2 road work toward the restricted approaches.
3 SPEAKER: Okay. Thanks, Paul. Terry?
4 SPEAKER: I don't want to say "great minds think
5 alike," but I was looking at the combination of two and
6 three as a alternative except of course that when you
7 acceptable dose levels in the regulations, which must be met
8 before materials could be released and end it there, and
9 then you could address the specific issues associated with
10 the metals release, as it has a public perception issue.
11 That material -- and we talked afterward.
12 Sometimes when you have a glove and you try to fit that
13 glove, it doesn't fit. One size doesn't fit all; when you
14 try to make the glove fit, it doesn't fit anybody. And
15 sometimes you have to look at the various fingers and say,
16 well if we have these fingers, now we have a glove. So
17 that's my suggestion there from an alternative.
18 SPEAKER: So, when you say deal with it from a
19 public perception point of view and the fingers and the
20 glove analogy, does that mean that you would look at it on a
21 case-by-case basis depending on the situation, or?
22 SPEAKER: No, I think there are a lot of
23 alternatives set out here. As an example, you have tools
24 and machinery. They could be treated differently than
25 hospital waste and research laboratories and universities,

1 such that there are various dose criterias based upon
2 expected releases or expected uses of it, because -- will
3 the public get upset if a, if a wrench is cleaned and used?
4 No, I don't think so. Will the public get upset if, you
5 know, large tons of steel are being released and put into
6 the environment and getting made into incubators, etc.?
7 Yes, they will.
8 So, if you try and fit that glove, it's only gonna
9 complicate the people that have to do business, like the
10 nuclear power people. I mean, they have a problem and we in
11 the steel industry recognize that, that there are issues
12 that they have to face.
13 We also believe that the doses that you set ought
14 to be risk-based levels. So if you're going to pick a one
15 or you're going to pick a tenth, how does that relate to the
16 100 millirem that you're already saying is safe? To the 25
17 that you're already using in some circumstances? We don't
18 want to see our industry brethren encumbered by overbearing
19 regulations when we're trying to protect our perception
20 image so that everybody ratchets its levels down to where
21 nobody can do anything with anything. So I would just like
22 to throw those out as alternatives for the NRC to consider.
23 SPEAKER: Any comments on Terry's suggestion?
24 Art.
25 SPEAKER: Yeah, just two thoughts. First of all,

1 I'd sign up with the two dose-limit kind of thought. I
2 think that really does need to be explored some more -- one
3 dose limit for materials being recycled back into commerce,
4 and perhaps another dose limit for something being sent
5 directly to disposal in a Subtitle C or D landfill.
6 The second comment is something I haven't, just
7 I'd like to point out. And that is, I haven't heard
8 anything about harmonization with the Department of
9 Transportation limits as far as why the material is no
10 longer regulated under NRC but may still be regulated under
11 U.S.DOT. The DOT surface-contaminated object standard is
12 0.24 beckerals per square centimeter for beta-gamma
13 materials.
14 SPEAKER: So that's a potential regulatory
15 disconnect that we should explore. Ed, did you want to add
16 onto this?
17 [Laughter.]
18 SPEAKER: No. All right. Vince?
19 MR. ADAMS: Vince Adams, DOE. This here is just,
20 I guess, a follow-up to Gwen's question again because I
21 think it's a very important question, or even an extension
22 of it. If you, if you look at -- what is it, diamond, or
23 the third or fourth bullets there.
24 If you, if you adopt those, and let's say the
25 European Community adopt the second bullet, which is

1 unrestricted reuse, I guess the question is how are you
2 gonna -- you're restricting release in the United States,
3 but you're not restricting release in a foreign country, but
4 the foreign countries are using these unrestricted releases
5 to make products that are coming back into this country?
6 And I think, I mean, there's a big discrepancy. How do you
7 make that consistent?
8 So if you're gonna look at 2 and 3, then you're
9 gonna be on a different side of the international community.
10 SPEAKER: Okay. So that's a following-on on
11 Gwen's point is that, in selecting alternatives, the NRC has
12 to take a look at what the international -- in a simplistic
13 way of expressing it -- international implications.
14 Any other alternatives that people want to bring
15 up? Joelle?
16 MS. KEITH: Joelle Keith, State of Tennessee. I
17 had a question about number 2. You talk about acceptable
18 dose levels. Do you mean you'll set a dose level and you'll
19 give us guidance on how to analyze a particular process, or
20 are you saying the dose level will be turned into a
21 volumetric or a surface level and we'll actually be dealing
22 with that?
23 MR. CARDILE: I'll start, and then maybe Tony
24 and/or Steve will jump in.
25 Probably what NRC would do in a regulation would

1 be to set -- as we've talked about a couple of times -- a
2 dose-based standard at a millirem per year. And then we
3 would, at the same time, be developing a guidance which
4 would tie concentration levels to that dose-based standard.
5 SPEAKER: Tony, do you want to talk about your
6 dedicated melt idea? Is that an alternative? IT seems like
7 it is. Do you just want to put it on the record for us?
8 MR. LEMASTRA: Tony Lemastra, AISI -- or Tony
9 Lemastra, himself I guess.
10 [Laughter.]
11 MR. LEMASTRA: In actuality, it's being conducted
12 today, where you, you take known radioactive or known
13 contaminated material and through the melting process -- or
14 you send it to a licensed facility to melt -- in the
15 melting, refining process you actually clean it up some. So
16 it becomes one, a process of decontamination.
17 But essentially because it's a, a regulated
18 facility, where you control where the products go, which
19 kind of follows with what Frank was saying, was that you
20 have control over it, which can help get out from under some
21 of the perception problems.
22 You know, in this case, everything's going to --
23 whether it's a steel melter or an aluminum or a copper or
24 nickel, or anything, whatever it happens to be -- it's going
25 to be controlled. Secondly, you, you have control over the

1 by-products -- the slags and the dust and the fume that's
2 formed. And you know, as a regulator, you have control over
3 where those products are going. So it's -- you know, in a
4 sense, like I said, we're, we're going it today with the
5 shielding blocks; we're doing it with, I guess the B-25
6 disposal boxes.
7 I'm not sure I could add a whole lot more to it
8 other than look at, at the cleaning technology that you can
9 get out of it.
10 SPEAKER: Okay, thank you. Let me ask the NRC
11 staff whether they have any questions on that or any of the
12 other things that were brought up. Bob? No? Steve?
13 MR. KLEMENTOWICZ: Steve Klementowicz. I had a
14 comment on the two-tiered approach about one level for
15 unrestricted clearance and another level for disposal.
16 We hear that; however, we would still have to
17 consider that there's some usable material, even though it
18 goes into a landfill and gets covered, you know, by tons of
19 stuff each day, there's still, we would still have to
20 consider some evaluation, whether or not someone would go in
21 and salvage that material, or that it would never reach the
22 disposal facility. That has occurred.
23 You know, stuff that supposedly goes to the
24 landfill -- I think it was in the news some years ago that
25 all these contaminated tools and equipment were excavated

1 from some disposal sites. So the NRC would still be obliged
2 to evaluate the likelihood of someone taking the material
3 and/or using it. Just to let you know, it's not a
4 straightforward -- dispose of it, it's gone forever.
5 SPEAKER: Okay. Thanks, Steve. Valerie.
6 MS. McNAIR: I'm Valerie McNair from Manufacturing
7 Sciences Corporation in Oakridge, Tennessee. We
8 decontaminate and we recycle metals. We do support the
9 responsible and regulated release of the metals. I do
10 believe that there are some specific cases, for instance,
11 where we've been talking about the, the specific melter set
12 aside for the radioactive materials or metals. What I do
13 believe is that is for small volumes of metals, and that's
14 for some specific cases.
15 Perhaps it's not the long-term solution for large
16 volumes of metals. Some of the cases that I have been
17 hearing are, for instance, for shield blocks. I've also
18 been hearing, for instance, for drums or for boxes. Well,
19 at MSC we have tried those options.
20 One of the options that we have put considerable
21 effort into is to turn it into drums to go back into the DOE
22 facilities. Those drums, we've put in manufacturing
23 processes -- we had an independent melter for that. And it
24 was a melter there at our facility. The problem with that
25 is when you make those drums, you don't have the volumes

1 that are made of drums in industry. So you're competing
2 from a cost basis of people that make thousands and
3 thousands of drums, and here you're making tens or hundreds
4 to go back into restricted markets. So it's very difficult
5 to compete from a cost basis.
6 Also, you're looking at, you're working in a
7 licensed facility. So there's a difference in cost working
8 in a licensed facility versus competing with the outside
9 market. so you are looking at a cost difference between
10 metals that are going into a restricted market and those are
11 unrestricted release. And you have to consider the
12 economics of the issue before you can consider these
13 alternatives.
14 SPEAKER: Okay. Thanks, Valerie. And I think, as
15 with Gwen's four questions, these points should be brought
16 up, these questions should be brought up again when we're
17 evaluating all these alternatives against each other.
18 I think we do need to, to wrap up soon. Let's go
19 to, to Paul, and then we'll hear from Bob Mack.
20 MR. GENOA: Paul Genoa, NEI. And just a
21 follow-up, Valerie, because I know the process that you went
22 through and I think it was an excellent effort to do that.
23 But I would caution the NRC -- you are required to do a
24 cost-benefit analysis under NEPA and so forth, and that's a
25 challenge and it's gotta be done. But it's really

1 inappropriate for regulators to essentially establish what
2 the industry or the market will or won't do.
3 What we just heard was that at this point in time,
4 with disposal prices at DOE being X and the cost of
5 manufacturing boxes being Y, we couldn't make it work. That
6 doesn't mean it wouldn't work tomorrow or it might not work
7 in the future. So, I mean, you have to be a little careful.
8 Fundamentally, you have to set standards that are
9 health-based and protect the public and then allow the
10 market to work within those constraints to see whether
11 things make sense. And they may not, you know. But you can
12 preclude those out of hand, if you try to make those
13 determinations on your own. That's my only caution.
14 SPEAKER: Okay. Bob? Thanks, Paul.
15 MR. MACK: Bob Mack, NRC. Chip, you may not
16 appreciate this because it might not wrap things up for you
17 --
18 [Laughter.]
19 MR. MACK: -- but there is a thought that one form
20 of the rule could be a pilot kind of project or a pilot
21 rule. Try, say, limited kinds of materials or try one set
22 of, kind of licensees. You could cut that several different
23 ways, but the, but the rule, a rule going out doesn't
24 necessarily have to go across all licensees or across all
25 materials. Does that stimulate anything about alternatives?

1 SPEAKER: No. I think that's a legitimate
2 suggestion. Do we have any comments on the possibility of a
3 pilot, small-scale -- whatever you want to term this?
4 Norman, you have any thoughts on that? Anybody want to
5 comment on the feasibility, the wisdom of doing that?
6 [No Response.]
7 SPEAKER: All right. Well, it's there as an
8 alternative of, identified in the meeting to be explored.
9 I think now we're going to go onto the next topic,
10 which is -- I guess Tony Huffert, is that right? On
11 assurance issues.
12 SPEAKER: If you don't mind, we're just gonna keep
13 rolling through the meeting. Some people are anxious to get
14 to a certain afternoon activity in Atlanta associate with
15 sports events. So we're gonna, we might end a little bit
16 early, but we're gonna keep, keep going through the
17 discussion and give Tony a little bit of an opportunity to
18 talk about how materials, control of materials would be
19 assured under any of the scenarios we've talked about.
20 MR. HUFFERT: Thank you, Barbara. This is really
21 a follow-up to the session we just had. It's got a slightly
22 different spin. If I could ask us to think about the
23 development of a draft reg. guide, if we were to come out
24 with a rule, how would it look? What kind of controls you'd
25 like to see in there.

1 Session 5: how should the control of materials be
2 assured under the various alternatives? This topic is
3 discussed in Section 2 and 3 of the issues paper. And the
4 main topics are implementation and restrictions.
5 As we discussed earlier today, existing NRC
6 regulations require licensees to make surveys of solid
7 material to evaluate the potential rad hazard that could be
8 present. And as part of this rad safety program at licensed
9 facilities to develop procedures for controlling solid
10 materials, which includes radiation monitoring procedures,
11 to evaluate any solid materials before they could be
12 released.
13 Presently there are some issues with existing
14 survey programs at licensed facilities. Not all of them use
15 the same survey instruments and procedures to monitor the
16 solid materials, which in turn leads to variations in the
17 detection sensitivity and equipment used. This in turn can
18 lead to different levels of control of solid materials,
19 which could results in non-informed levels of protection.
20 Another issue is that existing guidance on
21 conducting surveys is really geared toward the release of
22 solid material with surface contamination only, not
23 volumetric contamination. For example, we've been talking
24 about regulatory guide 1.86 and field cycle 8323.
25 Neurosis and physical limitations from measuring

1 volumetric contamination, because it is difficult to measure
2 radioactivity that is contained in a solid object using
3 typical handheld survey instruments that are used at most
4 facilities. So an overall consideration we have before us
5 in controlling solid materials with volumetric contamination
6 is how to detect or measure radioactivity in the material
7 itself and then compare the results, the results to a
8 predetermined level.
9 It's likely that the survey method that is chosen
10 for controlling solid materials will be dependent on the
11 alternative chosen for regulating these materials.
12 Currently the NRC is considering a range of alternatives,
13 which in turn requires the staff to technically evaluate a
14 variety of survey approaches and procedures because the
15 alternative chosen determines which survey method should be
16 used to control the solid material and release. It follows
17 that if we have a dose criterion that is chosen very low or
18 zero above background radiation levels, very sensitive
19 survey methods and equipment would be needed and there are
20 associated implementation costs and procedures that would
21 have to be developed.
22 Another consideration in controlling the solid
23 material release is restricting the release to only certain
24 authorized uses, which we've just discussed -- for example,
25 the future use of the material restricted to only certain

1 industrial purposes or processes where the potential for
2 public would be relatively small.
3 So I'd like to open it up. For restricted use,
4 what other controls are needed? Some of the options we've
5 already discussed here. And let's also consider one or two
6 more. The public review or involvement process, we have not
7 discussed yet.
8 As has been noted before, the license termination
9 rule didn't have a restricted release for sites. Would it
10 be appropriate under this effort that the NRC, should we
11 consider having certain local groups involved in reviewing
12 what a licensee does?
13 Should there be a more global group established to
14 review and get involved in our process?
15 Should there be licensing of the first-user in a
16 processor?
17 Would this be beneficial for radionuclides only
18 with a short half-life?
19 Would this permit adequate time for the
20 radioactive decay to reduce the amount of contamination of
21 material?
22 What would be the appropriate length of time for
23 restricting the solid materials?
24 Should it be tied to the lifetime of the structure
25 that's contained, that's contained in the control materials,

1 or should it be directly related to the half-life of the
2 material?
3 And what other options should be considered here?
4 So I'd like to open it up. I know Bob Mack
5 suggesting a pilot rule limited to licensee type and
6 material type. I don't know if we want to pick up there or
7 move on to something else.
8 SPEAKER: Okay. Couple of comments. Should we
9 start with you Noelle?
10 MS. ROGERS: Something just came to mind -- Norma
11 Rogers, Allied Signal -- that I heard of. I'm not a person
12 in the metals industry, so bear with me. The DUF-6 that the
13 DOE has a large amount of, and potential clean-up of that
14 situation -- I was at the waste conference in Tucson, and
15 one proposal was research to use the uranium metal that
16 could be a by-product of cleaning all that up, in various
17 things other than just shielding blocks. And one of the
18 statements that was made was a sacrificial endnote in the
19 aluminum manufacturing. And so bear with me; I'm totally
20 ignorant of the metal part.
21 But the concern that I have is, is this would be
22 perhaps a restricted stuff, as far as uranium metal, but
23 what amounts of it would go into the uranium, I mean the
24 aluminum and the dose to the public -- that seems like a
25 whole different situation. I mean, if it, I don't know

1 about aluminum production, but how much carbon -- I guess
2 they use carbon in those now -- how much of the carbon is in
3 all of the aluminum and what's the dose if it were uranium
4 instead of carbon?
5 SPEAKER: Okay, it sounds like you're talking
6 about a specific scenario or idea. If anybody has any --
7 particularly from the metals industry, would like to
8 elaborate on or clarify the concept itself, that would be
9 helpful. And we want to make sure we get at these questions
10 of continuing monitoring and dealing with the controls that
11 are maintained under some of the alternative restricted-use
12 scenarios, other scenarios. And what?
13 MS. ROGERS: What I mean was that's restricted
14 versus non-restricted --
15 SPEAKER: She's saying that's restricted versus
16 non-restricted. Anybody have any thoughts on that?
17 MR. LEMASTRA: Tony Lemastra himself.
18 [Laughter.]
19 MR. LEMASTRA: My background is not in the
20 aluminum industry, and from what I understand of, of the
21 process, where the sacrificial anode would be used -- I
22 don't think you have a lot of cryolate in that process, but
23 I could be wrong. But if you do use the cryolate, you're
24 gonna dissolve the uranium into the aluminum. You may end
25 up -- again, I don't know the chemistry involved either in

1 what's happening, if you would use the aluminum or, use the
2 uranium instead of the aluminum. But, you would obviously
3 have to get some good aluminum metallurgists.
4 SPEAKER: Maybe the thing to do here is to try to
5 -- rather than to explore that specific example, which may
6 or may not have the expertise for, take it back to a more
7 generalized question: Is that the kind of approach that,
8 that could be useful and how would you maintain controls
9 over it? That's the focus of this discussion.
10 MS. ROGERS: That's the question.
11 SPEAKER: Yeah.
12 SPEAKER: For example, I've heard the use of
13 labeling --
14 SPEAKER: Labeling.
15 SPEAKER: -- stamping, licensing. Are these, are
16 these options that are open?
17 SPEAKER: Reasonable options? Pros and cons of
18 those? Somebody else had something over here. Art?
19 MR. PALMER: Art Palmer, ATJ. Not so much on
20 trying to trace anodes down. But I did want to delve into
21 some of these survey methods and suggest a couple points.
22 If the, if the box is drawn broadly around materials that
23 have been in radioactive materials areas or radiologically
24 controlled areas as needing to be free-released or surveyed
25 from restricted release, then I think it would be prudent to

1 allow process knowledge as an alternative for one method of
2 determining whether or not an item has a radiological
3 history or something like that. Include that in the
4 universe of choices for the licensee to use. Hold them
5 accountable for performance, but please give them that
6 option.
7 The second thing would be a suggestion on
8 statistical sampling programs for homogeneous materials such
9 as low-activity resins, where you could perhaps pull samples
10 and then justify that it's a representative sample for
11 release. Just a couple thoughts.
12 SPEAKER: Good. Other ideas?
13 MR. KLEMENTOWICZ: Steve Klementowicz, NRC. I had
14 jotted a list down for survey methods and for consideration.
15 And you've given us some comments. The need for a survey --
16 should it be a 100 percent survey of the material? Should
17 it be a representative sample of the material? Should you
18 use engineering judgment? Or should it be a statistical
19 sampling? So those are some options that the NRC would need
20 to consider through any of this. So any -- we've heard some
21 feedback. What about the 100 percent survey or the
22 statistical sampling survey? It's consistent with the
23 decommissioning criteria.
24 SPEAKER: Bob?
25 MR. MACK: Bob Mack, NRC. I'd like to add one

1 more to that that's certainly on our minds. And that is,
2 over what volume or surface area is appropriate to average?
3 Certainly Reg. Guide 1.86 has a surface area that you can
4 average over. I'd like to hear some input on that.
5 SPEAKER: Comments? 100 percent survey?
6 [Laughter.]
7 SPEAKER: Any comments on the statistical
8 sampling? Bounds on that? Okay, it sounds like there's a
9 good menu of things for the NRC to evaluate. They'd
10 appreciate more of your input on it, I'm sure. Either we go
11 through our discussion, or in writing perhaps.
12 MR. PALMER: Art Palmer, ATG. Just on the area or
13 volume to average over, I've seen this get progressively
14 more ridiculous until we're looking at practically
15 microscopic levels. You know, it's almost to the
16 micro-climate studies that some meteorologists do.
17 In the grand scheme of things, worrying about
18 surface contamination on an object that is a tenth of an
19 inch thick, that's essentially uniformly distributed at that
20 point. Yet I've seen a lot of effort expended on
21 determining whether or not that can, you know -- how small a
22 unit I guess is my concern. I have seen that get very, very
23 ridiculous.
24 SPEAKER: Other comments? Any other types of
25 controls that should be considered? Paul?

1 MR. GENOA: Paul Genoa, NEI. I would just answer
2 Steve's challenge on 100 percent survey and representative
3 sampling and statistics. And I think all of those -- I
4 think as Art put out -- licensees are going to need to have
5 a whole arsenal of tools to make evaluations of a broad
6 range of materials.
7 If you're talking about a nice, uniform surface,
8 like the surface of a table, a hundred percent makes sense
9 and is achievable. If you're talking about a 40-acre
10 effluent discharge pond of sediment, you're not gonna do it,
11 so you're gonna need to use representative sampling in that
12 case. And the question is, what is representative and what
13 is acceptable. And I think some work needs to be done
14 there. But I think you're probably not gonna find a
15 one-size-fits-all for that, and rather, you're gonna need
16 appropriate survey techniques for appropriate types of
17 material. And they should cover volumetric, as well as
18 surface, contaminated materials.
19 SPEAKER: Different points of view? Other points
20 of view on that?
21 Have we reached the end of the day and the end of
22 our, tail-end of the energy curve?
23 SPEAKER: How do you feel about the Atlanta
24 Braves' chance tonight?
25 [Laughter.]

1 SPEAKER: Okay. Anything else you'd like to pose?
2 SPEAKER: Not at this time.
3 SPEAKER: Okay. Good. Well, we appreciate your
4 attention today. We're gonna, as we said before, take the
5 flip-chart notes and develop them into some meeting
6 highlights to come out right after this meeting. So as you
7 take a walk around, if you see any problems with them,
8 inaccuracies, please tell us. We want to make corrections
9 now.
10 We're gonna get started again in the morning,
11 8:30. We'll be in here. You can leave paper in here; do
12 not leave anything valuable, I would recommend. And again,
13 there's dinner choices in the area that are pretty decent.
14 They'll give you transportation. Ask the front desk. The
15 folks want to try to hook up in groups. We'll let you do
16 that informally. And we'll see you first thing in the
17 morning. Coffee'll be here at eight.
18 [Whereupon, the workshop was recessed, to
19 reconvene at 8:30 a.m., on Wednesday, October 6, 1999.]
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REPORTER'S CERTIFICATE

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

NAME OF PROCEEDING: RELEASE OF RADIOACTIVE MATERIAL WORKSHOP

PLACE OF PROCEEDING: Atlanta, GA

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

Bob Addington

Bob Addington
Official Reporter
Ann Riley & Associates, Ltd.