1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 ***

4 RELEASE OF RADIOACTIVE MATERIAL WORKSHOP

5 ***

6

7

8

9 Palmer House Hilton

10 State Ballroom

11 17 East Monroe Street

12 Chicago, Illinois

13 Tuesday, December 7, 1999

14

15 The Workshop commenced, pursuant to notice, at

16 8:30 a.m.

17

18

19

20

21

22

23

24

25

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

2 [8:37 a.m.]

3 STINSON: Welcome, everyone. I am Barbara
4 Stinson. I am with Meridian Institute. I know many of you
5 have had the opportunity -- Mike or I have had the
6 opportunity to talk with many of you in advance of this
7 meeting. I want to welcome you to the fourth in a series of
8 workshops on Control of Solid Materials sponsored by the
9 Nuclear Regulatory Commission.

10 I am going to start by turning it over to Dr. Don
11 Cool for some introductory remarks, and then we will go
12 through some introductions.

13 COOL: Is that it?

14 STINSON: That's you.

15 COOL: Usually she gives me a little better hint
16 than that. Good morning. Welcome, each of you, to Chicago.
17 Glad that we can be up here and get together with you to
18 continue the series of workshops that we have been holding
19 over the last few months to explore the possibilities for
20 the NRC in looking at the control of solid materials.

21 For those of you whom I have not had an
22 opportunity to meet before, I am Donald Cool. I am the
23 Director of the Division of the Division of Industrial and
24 Medical Nuclear Safety with the Nuclear Regulatory
25 Commission. While that title doesn't sound like the title

1 you would expect the Senior Manager to have who is
2 responsible for this particular rulemaking activity. One of
3 the things that my organization in fact takes care of the
4 Office of Nuclear Materials, Safety and Safeguards in the
5 NRC is to oversee and look at all of the different
6 rulemaking activities that apply to the various materials
7 programs.
8 As many of you know, there are no national
9 standards in the sense of a formal regulatory requirement in
10 the Code of Federal Regulations which articulate the
11 appropriate levels for controlling different solid materials
12 in order to assure public health and safety. On the other
13 hand, we all come in contact every day and have to deal with
14 a variety of materials in our environment which do contain
15 radioactivity either as they exist in nature, as a result of
16 various activities that we conduct just moving the dirt
17 around, processing activities of various industrial
18 ventures, as well as the more specific uses to make use of
19 material for its radioactive properties.
20 In this age of increasing environmental
21 consciousness where we are beginning to look more and more
22 closely at the impacts of all of the things that we do,
23 providing for public health and safety is given a new
24 meaning and a great deal of new complexity to the task of
25 specifying how much material, whether it be radioactive

1 material or any other kinds of materials can be in the
2 different kinds of products and materials that we use in our
3 daily lives.
4 There are currently many facilities in the United
5 States that potentially possess valuable materials that have
6 small quantities of radioactivity that may still be
7 associated with them. At present, licensees determine
8 whether such material can be returned to the general market
9 by applying guidance for surface activity that has been in
10 place for many, many years. In other cases, particularly
11 those with our power reactors a criterion is basically
12 applied as to whether or not activity can be detected.
13 The result of this has been what amounts to the
14 continuing redefinition and continuing debate over what
15 should be considered as appropriate levels.
16 Thus, this particular process is an attempt to
17 have a national dialogue and discussion on the issues
18 associated with controlling material in order to answer the
19 question of whether and under what conditions such material
20 should be disposed of in an appropriately licensed facility
21 or the circumstances under which it could be safely reused
22 or recycled within the more general marketplace.
23 In this sense I think we probably share a common
24 purpose -- yes, I think there is actually at least one --
25 and that is applying appropriate controls at each stage of

1 the process to assure that the risks posed by any of the
2 activities are taken care of and the public health and
3 safety is protected both for us as individuals and for the
4 global society and the environment.
5 As part of determining the appropriate controls, a
6 lot of questions have been raised about who are you looking
7 at, who is this individual or who is this society, and those
8 are some good questions and there has been quite a bit of
9 discussion on that topic in the last several meetings.
10 One in particular seems to revolve around the
11 question of who is a worker, who is a recipient, who is a
12 consumer, who do you do the modelling for, who do you do the
13 calculation for, how does all of these particular sorts of
14 systems fit together. Let me assure you first that we are
15 going to look at all of these individuals, and we will be
16 having discussions a little bit later today that will talk
17 about the different kinds of modelling that gets done, how
18 we look at some of these activities, but one of the
19 particular questions related to a worker.
20 In that sense there are two categories that we
21 most definitely look at. The first is of course a worker
22 who may involved in a licensed facility. There are already
23 standards in place dealing with occupational exposure
24 including training, monitoring requirements, a variety of
25 things, and those would obviously remain in place.

1 If you are in any other kind of facility and the
2 material has been released, it really doesn't matter whether
3 you are working there, visiting there, or whether the
4 material has gone on someplace else. We will consider you
5 as a member of the public and apply those types of criteria.
6 Thus we will look at those sorts of individuals as some of
7 the potential exposure scenarios just as we would look at
8 some of the scenarios for an end-user, someone who receives
9 a small quantity in some other product, people who are in
10 various foundries or activities, people who are involved in
11 manufacturing activities and otherwise.
12 As you are probably aware, this is the fourth
13 meeting on this subject over the last several years. We had
14 originally hoped to be up here much earlier in the fall, but
15 for a variety of very good reasons -- to allow people enough
16 time to actually think about the issues and look at the
17 issues paper and background documents that are available --
18 this ends up being the last of this particular series of
19 activities.
20 While the discussion topics that we are going to
21 be looking at over the next day and a half or so are
22 essentially the same as those that we have used in the other
23 workshops I am in hopes that we can move these discussions
24 forward, try and fill in some of the areas that have not
25 gotten a whole lot of attention yet, try to leverage and

1 build upon the information that we already have available.
2 Having said that, that is not in any way an
3 attempt to try and limit the discussions, limit the
4 particular issues that you want to bring to the table, but
5 rather to try and make sure that we have availed ourselves
6 of the opportunity to hear from each of you on as many of
7 the subjects as possible so that we can prepare a good and
8 complete summary of the issues and comments and viewpoints
9 when I take the results of these meetings back to my
10 Commissioners in March of 2000.
11 This and the other meetings and opportunities for
12 interaction are part of an enhanced participatory rulemaking
13 process to try to define the appropriate regulatory vehicle
14 for establishing a national standard. We have facilitators
15 here whose job it is to try and keep us in line, help us
16 think through our thoughts, make sure we have captured them
17 appropriately.
18 The meeting is being transcribed so that we can go
19 back and remember what it is that has been said and the
20 arguments and discussions that took place. I would like to
21 encourage you to be open with the ideas, the reasons and the
22 approaches. Let me go back and re-emphasize just for a
23 moment that word "reasons" -- there are a lot of views and
24 opinions and positions and ideas that are out there, and one
25 of the things that will be very important to us as an NRC

1 Staff as well as the Commissioners in considering this issue
2 is the rationale and reason behind particular positions as
3 well as those reasons.
4 While this is certainly an opportunity to hear
5 from, ask questions of the NRC Staff, and we have a number
6 of people who are part of the various NRC organizations, in
7 order to be able to try and do that, this is also as much or
8 more importantly to us an opportunity for you to interact
9 with each other and try and build upon ideas and look at the
10 ways that this problem could be moved forward.
11 Let me spend just a little moment or two to talk
12 about a couple of things that have come up in the previous
13 meetings, try to deal with some of those early-on in the
14 process.
15 First, there have been a series of questions that
16 have been raised about the supporting contracts, documents
17 and other activities that the Commission Staff has been
18 moving forward with in an attempt to support these
19 activities. In particular, there have been some questions
20 raised about some of the contractors, some of the activities
21 of those contractors, and whether or not there are any
22 potential conflicts of interest. That is on the public
23 record from the last meeting.
24 I was very much in hopes at that time that the
25 results of our review would be available so that we could

1 answer those questions. That is not the case. It is being
2 carefully examined by our Office of General Counsel and our
3 Division of Contracts and I think in the interest of all of
4 the parties and fairness in terms of conducting a fair,
5 thorough and honest review of all of the issues that this
6 probably isn't the forum to have a great deal of additional
7 discussion on that topic now until the legal details have
8 been sorted out.
9 There has also been considerable interest about
10 the specific activities in the state of Tennessee, some
11 specific licensing actions with Manufacturing Sciences
12 Corporation, and particular recycle issues on particular
13 kinds of materials.
14 Many of you may be aware that Congressmen Dingell
15 and Markey and Klink provided to the Commission a rather
16 long list of questions and issues looking at jurisdiction as
17 well as technical issues in this particular arena. The
18 Commission Staff has taken a very hard look at that and is
19 in the process of preparing a detailed response for the
20 Congressmen which will be provided later this month. Once
21 that has been provided to Congress, that will also be
22 publicly available and you will have an opportunity to see
23 that.
24 Finally, there have been questions raised for very
25 obvious and good reasons about, well, this is very nice --

1 you have had four public meetings, we have all had a chance
2 to sit around the table and talk a little bit. That's
3 great. Now what?
4 The Staff continues to plan to move forward as the
5 Commission has asked us to do and bring them a summary of
6 the information and options on how to proceed to the
7 Commission in March of 2000. That is just a little over
8 three months from now.
9 We plan to try and provide that paper to them and
10 to develop that paper in such a way that you will have an
11 opportunity to continue to interact with us. We can talk
12 about some more of the details a little bit later on. Those
13 of you not particularly familiar with Commission papers, the
14 actual paper tends to be very short and there's lots and
15 lots of attachments which contain all of the details. A lot
16 of that drafting work is going to be needed to be done and
17 examined by the working group. We are looking at having
18 some of those working group meetings be open to the public
19 and drafted materials available to look at so that you have
20 an opportunity to continue to interact with us and look at
21 the documents as we are developing them in preparation for
22 the Commission.
23 What is the working group? That's probably a fair
24 question as well. For a project of this size I have a
25 number of individuals on the Staff, most of whom are here

1 today, representing various technical disciplines. They get
2 together to prepare these documents, review the materials,
3 draft up the individual pieces that would need to be
4 written, perform technical analyses, oversee contracts --
5 those various activities.
6 Frank Cardile of my staff leads that working
7 group. It includes a number of other individuals.
8 We also have a management group of folks including
9 individuals from the Agreement States. Pleased to see Steve
10 Collins here, who has been working with us on that to
11 provide some immediate feedback to them when they have
12 questions that are raised and some management considerations
13 before we actually finally send the documents to the senior
14 management of the agency and the Commission.
15 All this having been said, we continue to welcome
16 your interest and we look forward to your participation.
17 There have been a variety of background documents
18 that have been made available now for a number of months
19 including an issues paper which can serve as a starting
20 point for our discussions today. That issues paper doesn't
21 represent the end of all the options and we have heard lots
22 of variations and additions to that already over the last
23 three meetings, so I would encourage you once again to feel
24 free to elaborate, provide additional options.
25 Part of what I hope we will be able to do over the

1 next day and a half is to put together proposals -- I am not
2 going to say a singular one because I am not at all
3 convinced there is a singular one -- that you believe could
4 work to move this issue forward, either for a particular
5 kind of material or in general for all types of materials.
6 As I mentioned a little bit earlier, Barbara
7 Stinson and Mike Lesnick from the Meridian Institute will be
8 serving as our facilitators for the next two days to help us
9 achieve a successful dialogue on all of these topics.
10 I think I have probably talked about long enough.
11 You have probably already gotten tired of hearing from me.
12 Let me again welcome you. I look forward to these
13 discussions and activities and I am going to turn it back
14 over to Barbara for the introductions.
15 STINSON: Thank you, Don, and we will have an
16 opportunity for anyone who has comments or questions for Don
17 as we move into the opening discussions this morning.
18 Let me just say a few introductory remarks on the
19 procedural side of my own. Again, I am Barbara Stinson.
20 This is Mike Lesnick on my right. Sarah Walen is in the
21 corner and you have probably heard the name Tutti Tischler
22 more than about any other name from Meridian Institute. She
23 is our administrative support for this project.
24 Meridian is a nonprofit -- that is your team, your
25 Meridian team -- and we are a nonprofit mediation and

1 facilitation organization.

2 As Don mentioned, we have been asked to assist in
3 convening this process, trying to identify relevant
4 stakeholders, bring folks to the table for full and balanced
5 discussion of a full array of issues and concerns and to
6 explore ideas for further development by the NRC Staff as
7 they develop the Staff paper that Don mentioned -- so we are
8 here to support you in whatever way you need to make this an
9 effective dialogue and discussion, so don't hesitate to ask
10 us about anything.

11 What I would like to do is take a round of
12 introductions at the table here and then around the
13 audience, and then we will walk through groundrules and
14 review the agenda. Before we start those introductions
15 though, let me just ask Lea Foushee -- who else are we
16 missing? -- Cliff Honnicker -- neither of you are in the
17 audience, are you? Lea or Cliff?

18 Why don't we take a round of introductions and
19 give -- many of you may know each other, but just mention
20 your name, the position that you serve in your organization
21 and then your affiliation and we will just go around the
22 table and then take a quick round of introductions in the
23 audience as well.

24 This will be the first time I will say something
25 you will hear from me endlessly in this discussion, which is

1 please speak directly into the microphone so that the
2 transcript accurately records all that you have to say. We
3 will have to do that for every comment made.
4 LESNICK: Good morning. I am Mike Lesnick with
5 the Meridian Institute.
6 LIPTON: I am William Lipton. I am Principal
7 Engineer with the Radiation Protection Department at the
8 Fermi 2 Nuclear Power Plant.
9 WILK: My name is Charles Wilk. I am at the
10 Portland Cement Association. I am responsible for promoting
11 the use of cement for waste management activities.
12 STINSON: Great. That is helpful, just to hear
13 that little bit of how does what you do in your life relate
14 to what we are doing here -- just in a few words.
15 GENOA: Good morning. Paul Genoa. I represent
16 the Nuclear Energy Institute. I am a Senior Project Manager
17 at the Institute responsible for public radiation issues
18 such as this. The Institute represents users of nuclear
19 technology worldwide in 20 nations, over 280 companies, and
20 includes every nuclear power plant in the United States --
21 clearly the clearance of material is important to our
22 industry.
23 STINSON: Thank you.
24 HERNANDEZ: Good morning. My name is Peter
25 Hernandez. I am Vice President, Employee Relations, for

1 American Iron & Steel Institute, which represents 38
2 domestic steel producers that account for two-thirds of the
3 U.S. carbon steel production and employ about 125,000 in
4 their operations.
5 Our members would be the primary customers for the
6 scrap material that would be released from the various
7 sites.
8 STINSON: Thank you. Mike?
9 MATTIA: Mike Mattia, Institute of Scrap Recyling
10 Industries. I am the Director of Risk Management and ISRI
11 is the trade association that internationally represents
12 approximately 1400 companies who process, broker or consume
13 scrap material.
14 CONKLIN: I am Craig Conklin, with the
15 Environmental Protection Agency. I am the Director of the
16 Center for Radiological Emergency Preparedness, Prevention
17 and Response. The EPA has several requirements or several
18 regulations or statutes that we operate under, most
19 importantly the Atomic Energy Act with regard to radiation
20 and we are responsible for issuing generally applicable
21 environmental regulations dealing with the radioactive
22 materials and their release.
23 I am over seeing the international radiation
24 source management effort within EPA that is working with the
25 State Department and other agencies -- Gwendolyn Bauer is

1 part of that group -- and I am also working with the Orphan
2 Source Program initiative that we have with the CRCPD.
3 STINSON: Tom?
4 CIVIC: My name is Tom Civic. I am Manager of
5 Safety and Industrial Hygiene for Bethlehem Steel
6 Corporation. I serve as the Chairman for the Radiation Task
7 Group for the American Iron & Steel Institute and today I am
8 representing that task group.
9 LaMASTRA: Good morning. Tony LaMastra. I am a
10 Radiation Protection Consultant and I am serving as a
11 consultant to the American Iron & Steel Institute.
12 CARDWELL: Cindy Cardwell. I am with the State of
13 Texas Bureau of Radiation Control and Deputy Director of
14 Standards there. I am here today representing not only the
15 State of Texas but the Organization of Agreement States.
16 COLLINS: I am Steve Collins. I am with the
17 Illinois Department of Nuclear Safety and I am basically
18 here to represent the management concerns of that
19 organization and to make sure we keep up with the issues
20 that are involved in this particular subject area.
21 I am also here representing the Resource Recovery
22 and Radioactivity Committee, hereinafter referred to as E23,
23 of the Conference of Radiation Control Program Directors,
24 hereinafter referred to as CRCPD --
25 [Laughter.]

1 COLLINS: And I will try to make clear when I make
2 remarks, if I do, which hat I am wearing at the time.
3 STINSON: Good. That will be helpful. Susan.
4 LANDAHL: Good morning. I am Susan Landahl. I am
5 the Corporate Radiation Protection Manager for Commonwealth
6 Edison and my background is that I have a Bachelor's and a
7 Master's Degree in Nuclear Engineering from MIT. I am a
8 certified Health Physicist and I have over 15 years of
9 experience in nuclear power, ten of which were directly
10 working at a nuclear power site, so I have a lot of
11 experience in the practical aspects of what it takes to
12 release material.
13 Also, importantly, I am a wife and mother of a
14 beautiful little girl.
15 STINSON: We're going to have to share the mikes
16 like this throughout the day.
17 TURNER: Hi, I'm Jim Turner. I'm with Ameristeel
18 Corporation. I'm Director of Environmental Affairs. I'm
19 here on behalf of or in conjunction with the Steel
20 Manufacturers Association which represents the minimill
21 steel industry in the United States and North America.
22 HORTON: Hi, my name is David Horton. I work as a
23 civilian in the Army in the Rad Waste Office. I'm the
24 Health Physicist, Project Manager.
25 KOENIG: Bill Koenig, Radiation Protection Officer

1 for ISPAT Inland, Incorporated, as steel manufacturer in
2 Indiana. I work out of the Health and Safety Department.
3 THICKMAN: Good morning. I'm Stu Thickman from
4 Northeast Utilities. I work in the Licensing Group in
5 Millstone Unit I, which is a unit that we are in the process
6 of decommissioning.
7 ERICKSON: Good morning. I'm Kristin Erickson.
8 I'm a Radiation Safety Officer at Michigan State University,
9 and I am probably the only one representing a bunch of
10 academic and medical RSOs where we have, for example, 2,000
11 people badged and 500 faculty and labs and big accelerators
12 and lots of things going on that are across the board in the
13 industry, and also extremely difficult challenges with our
14 public labs and our turnover of people.
15 So this affects our program right across the
16 board.
17 CROOKS: Good morning. I'm Kelly Crooks. I also
18 work in the Army's Rad Waste Disposal Office. We're located
19 at the Rock Island Arsenal in Rock Island, Illinois.
20 We manage the disposal of the Army's rad waste,
21 and we have generators in every state, and virtually every
22 continent, so we have a worldwide program.
23 LILLY: My name is Judd Lilly, and I'm with the
24 United States Department of Energy. I'm out of the
25 headquarters office. I'm the staff person responsible for

1 decommissioning work in the state of Tennessee, specifically
2 the Oak Ridge Reservation.
3 SZWED: My name is Dan Szwed. I'm Director of
4 Environmental Affairs with AK Steel Corporation, here
5 representing the specialty steel industry of North America,
6 the Metals Industry Recycling Coalition, which consists of
7 specialty steel producers, steel producers, nickel, copper,
8 brass, and many other metals producers.
9 We are potential customers for scrap metals and
10 alloys that may come from these facilities.
11 DEVGUN: Good morning. My name is Jas Dergun.
12 I'm representing Consumers Energy, and I'm involved as a
13 Senior Project Engineer and a Project Manager in the
14 decommissioning team at Big Rock Point, a restoration
15 project.
16 I also am the Chairman of the American Nuclear
17 Society's Special Committee on Cleanup Standards.
18 ROGERS: Good morning. My name is Alice Rogers.
19 I'm with the Texas Natural Resources Conservation
20 Commission, which is the Texas Agency responsible for air,
21 water, and waste management.
22 I also serve as Secretary-elect of the
23 Organization of Agreement States, and also as a Committee
24 member on the CRCPD's E-5 Committee on Low Level Radioactive
25 Waste Management.

1 HUFFERT: I'm Tony Huffert. I'm the Health
2 Physicist in the Division of Waste Management for NRC. I'm
3 a member of the Working Group and I'm working on the
4 technical basis development for this initiative.
5 CARDILE: Good morning. I'm Frank Cardile. As
6 Done mentioned, I'm part of the Working Group team that's
7 working on the technical basis and also developing the
8 Commission paper.
9 HOLAHAN: Good morning. I'm Trish Holahan. I'm a
10 Section Leader in the Division of Industrial and Medical
11 Nuclear Safety, responsible for this activity. Thank you.
12 STINSON: Dan, we're just taking a round of
13 introductions, if you don't mind, just your name and
14 affiliation into the microphone.
15 GUTTMAN: Dan Guttman, with PACE.
16 GNUGNOLI: Georgio Gnugnoli, USNRC.
17 STINSON: Okay, that's the round of introductions
18 from the table. These individuals preregistered for this
19 process, and that was -- we didn't have a sense of who else
20 would be in the audience.
21 They have a variety of expertise, obviously, but
22 so do you all. So we're going to structure the agenda to
23 give you all an opportunity to participate in the discussion
24 as well, and I'll describe that in a moment.
25 Maybe rather that using the microphone, we'll just

1 ask all of you to shout our your name and affiliation, and
2 we'll start with Sarah.
3 STINSON: Okay, great, thanks. There are a couple
4 of things. Let me just walk through a few basic ground
5 rules and describe the format for this meeting:
6 Many of you have asked questions about it, and the
7 format has evolved over the course of the four meetings.
8 For this discussion, what we hope to do is move
9 through a series of topics in a different way than we have
10 in the past. We're going to talk material-by-material,
11 largely. We'll have some introductory comments from the NRC
12 and walk through some basic background.
13 But the majority of the meeting will be spent,
14 hopefully focusing on the activities involved with specific
15 materials for different licensees, and what the implications
16 of control of those materials might be, and the alternatives
17 for control.
18 So, that's a little bit different focus than we've
19 had, and that's an attempt to get a little bit more in-depth
20 discussion on each of these materials.
21 It will be largely a roundtable discussion, so
22 we'll be focusing on the comments within this group. But I
23 think it would be helpful, after each section of the agenda,
24 to offer the audience an opportunity to make comments as
25 well.

1 The way that we will recognize each of you as
2 you'd like to speak is by using your name cards, flipping
3 them on the side, and what we'll do is, for a particular
4 topic, we'll basically take the cards in the order they go
5 up, but we'll also try to focus the discussion on particular
6 topics.
7 So if you have a comment to make that's very
8 relevant to something you've just heard, if you can be
9 brief, we'll insert people into those comments in order to
10 have, like I say, a more focused, in-depth discussion.
11 So that's the way we'll run the discussion at the
12 table. At the close of the session, we'll turn to the
13 audience and then go on to the next topic. We'll see how
14 that works.
15 Let me just say a little bit about ground rules:
16 The primary ground rule is going to be speak into the
17 microphone. And hopefully, if any of you can't hear in the
18 back at any point during the meeting, let us know, and that
19 will be probably an indication it's not getting on the
20 transcript either.
21 The primary thing that we ask you to observe as a
22 ground rule for this discussion is to respect the fact that
23 there are going to be significant differences of viewpoint
24 around this table and in the audience. And by respecting
25 that, we ask you to, a) try to avoid any personal attacks

1 against the views that you hear; to try to respect each
2 other's time.
3 That means make your comments brief and to the
4 point. And to take any specific arguments that you may have
5 with individuals to the side of the room during breaks, and
6 not to act them out here at the table.
7 We're going to try to stay very focused on the
8 substance and the issues, and try to understand what some of
9 the reasons, as I think Don referred to, rationale and
10 reasons are behind some of the positions that people are
11 assuming on these various issues.
12 We will ask you to use your cards and we'll ask
13 that you give us license, Mike and I, some license in
14 directing this discussion. As I say, we're going to try to
15 make sure that it's a balanced discussion and that the
16 variety of the views around the table do get an opportunity
17 to come forward.
18 So, you may see us call on someone that you hadn't
19 thought was in the queue for the discussion, when, in fact,
20 maybe we've heard from three steel representatives or three
21 states representatives in a row and we'd like to insert
22 somebody else to get a mix of discussion going for the
23 transcript and for the health of the discussion, so please
24 give us that license.
25 If there aren't any questions about any of that --

1 and I will refer to ground rules again as necessary.

2 Every time you make a comment, you're going to

3 have to mention your name and affiliation, or at least your

4 name so that it's accurately recorded in the transcript.

5 And if you haven't had the blessing of enjoying

6 one of these transcripts, you, too, can have your own stack

7 of probably six to seven inches of paper at the close of

8 this meeting, verbatim transcript of everything that was

9 said.

10 It makes for some interesting reading. You'll

11 want to see how you really sound, how you come across.

12 Let's just walk through the agenda quickly, and

13 we'll give you a sense of how we hope to conduct this

14 discussion. Of course, we look forward to your comments as

15 we go through.

16 What we've done is, if you've seen past agendas,

17 we've compressed a lot of the introductory material that was

18 in eight sessions into two sessions, which we will move

19 through rather quickly this morning, basically.

20 So the Session 1 is now the first -- what as

21 formerly the first two sessions, compressed into an

22 introductory material on how the issues that we're

23 discussing fit into the overall regulatory picture.

24 We'll take a break this morning, and following

25 some comments on all those introductory remarks, largely

1 from Trish Holahan, we'll take a break and then move on to
2 Session 2, where we'll talk about some of the technical
3 bases for discussion.
4 Again, there will be opportunity for comment, et
5 cetera. I'm thinking that at the close of each session, we
6 will spend at least five minutes just seeing if there are
7 any audience comments on the topics of that session.
8 We'll break for lunch, and lunch is on your own
9 today. Of course, the beverages during our breaks are
10 complimentary, so help yourself. They come with the room.
11 During lunch, we'll take a break and send you off
12 on your own. There are a number of good restaurants in the
13 area, and we can point you in various directions.
14 At 1:00 we'll come back and just see if there are
15 any closing comments on the studies that are currently
16 underway or contemplated for this decisionmaking process,
17 and at 2:00 talk about alternatives on control of solid
18 materials.
19 This is the point at which we will turn to the
20 table of alternatives that you have been sent in advance of
21 this meeting, hopefully from Meridian, or have picked up off
22 the table. Let me know if you need a copy of it.
23 Just take a look at this table for a moment, and
24 I'll come back and refer to it.
25 At 2:00 we'll have a round of presentations, brief

1 presentations on the case-by-case approach and some other
2 alternatives that are contemplated.
3 We'll talk about how materials, control of
4 materials can be assured under various alternatives, and
5 then I think what we'd like to do is brainstorm the material
6 part of Column 1.
7 In terms of this table, the first column lists a
8 range of materials that either are currently under study,
9 have been designated to be studied by the Commission to the
10 NRC Staff, and are the subject of current NUREG activity, or
11 have been suggested during the course of the last three
12 meetings.
13 This is not a comprehensive list, so the first
14 thing we need to do is think about a comprehensive list for
15 Column 1. So we'll do that before our break at 3:00 today.
16 And then we'll come back and talk a little bit
17 about the current methods of control for each of the
18 materials. What we'd like to ask the folks at the table is
19 to please bring your real-world experience forward as to
20 what you see going on currently with the control of these
21 various materials where you have that experience.
22 We're going to have more experience for some
23 materials than others, but again to try to push the
24 discussion to a little bit more depth.
25 By 4:00 today, we will turn to discussion of

1 environmental -- well, alternatives for control and
2 environmental and cost impacts.
3 What I expect us to do is to focus first on
4 aluminum. We haven't talked much about aluminum in past
5 meetings, past workshops, and we have talked a lot about
6 ferrous metals, iron and steel. So we'll draw on some of
7 the knowledge that we have from that material, but try to
8 focus on aluminum if some of you have some experience to
9 lend on that.
10 We'll move across the table for aluminum and talk
11 about the potential alternatives for control, the health and
12 environmental impacts, and then the cost impacts. What
13 kinds of studies are needed to really understand what
14 further control of those materials, other than the
15 case-by-case method, would mean?
16 And then we'll talk about possible institutional
17 and other kinds of controls to assure control over the long
18 term under those alternatives.
19 So, just to reiterate, our plan is at 2:00 to hear
20 some presentations, then to bring -- and have a little bit
21 of discussion of the information on those materials in that
22 presentation, and then secondly to brainstorm the material
23 and make sure we've got a comprehensive list, talk through
24 the current methods of control, and by 4:00 focus on
25 aluminum for the other five columns of the matrix, of the

1 table. Does that make sense?

2 And then we'll start -- we'll see how that goes

3 and evaluate that discussion format at the end of the day,

4 and then start on Wednesday, tomorrow, with copper,

5 concrete, soil, et cetera, and then move through some fairly

6 quick discussions on each of those materials.

7 We may end up compressing some of these, and it

8 may make sense to talk about materials for reuse and trash

9 at the same time, or something like that.

10 Take each of these in turn, and final comments,

11 probably more by 2:30. I understand some folks, several

12 critical participants need to leave by 3:00, so be

13 forewarned that we're going to end our meeting tomorrow at

14 least by 3:00, and we'll see how the discussion goes.

15 If it looks like it's going to be even earlier

16 than that, we'll let you know. So that's the plan for

17 the discussion. I'd like to give anybody an opportunity to

18 give us some input on the way that we've structured the

19 agenda and the table of alternatives.

20 GENOA: Paul Genoa with NEI. Just a comment.

21 STINSON: A little bit closer, I'm sorry.

22 GENOA: Just the comment that we have to be

23 careful when we break down these material by material. I

24 mean I think it is appropriate, but the real world, we have

25 to deal with items. A welder contains copper wrappings,

1 contains insulation, is made out of metal, has, you know,
2 rubber leads. You know, that is the real world. A computer
3 screen, a terminal, you know, it is a whole composite of
4 materials. You don't separate them out and survey one at a
5 time. So in the real world most materials are complex
6 mixtures of these things. And so I hope that we would spend
7 a fair amount of time talking about the release of
8 reasonable materials or trash because they tend to more
9 represent the real world.
10 STINSON: That's good. That's fine. Again, it is
11 not meant to be artificial, it is meant to try to get us to
12 focus on some of these other materials and maybe it makes
13 sense to talk about some combinations of them as well.
14 Any other comments on the agenda? Okay. Yes,
15 Dan.
16 GUTTMAN: Dan Guttman. I am disturbed there
17 doesn't seem to be on a feedback on a lot of the basic
18 questions asked last session, particularly there is nothing
19 here about the institutional competence to do what is
20 supposed to be done. At the last session there was a
21 considerable presentation about the evidence. We are not
22 looking a question of the laws of nature, that is, is
23 radiation or safe or not, but the laws of human beings.
24 STINSON: And, unfortunately, Dan, we had -- I
25 wanted to mention this to you directly. We had an

1 introductory, a set of fairly comprehensive introductory
2 remarks from Don Cool and he did address a number of those
3 issues. So at the break, perhaps you can get a look.
4 GUTTMAN: I am not talking about conflict of
5 interest. I am talking --
6 STINSON: No, I know. But there are a range of
7 issues that he responded to that you raised.
8 STINSON: Well, I would just like to know whether
9 he can tell us about the evidence that the AEC, the agency's
10 predecessor, historically sponsored the release of materials
11 that is already floating around, nickel. And whether we are
12 going to talk about the aluminum experience that is ongoing
13 now at BNFL. And, also, the whole essential prejudgment
14 question, which appears to have been locked in now by the
15 SAIC contract. This is plainly a prejudged proceeding by
16 contract.
17 And, also, finally, as a basic piece of
18 information, we still don't even have the contract. As far
19 as I can tell, either the NRC has destroyed, or lost, or
20 will not provide to the public the basic contract document
21 underlying the regulatory proceeding here. The statement of
22 work for the 1992 SAIC contract, you all know, because we
23 have told the NRC General Counsel's Office for some time, is
24 not a matter of public record, and I am wondering why that
25 is being kept secret.

1 The basic point here is it sounds like a lot of
2 the people that have got questions are talking to people who
3 are appearing to be receptive, but are not providing any
4 responsive information. That is not acceptable in a public
5 dialogue.
6 STINSON: And I said I think that a number of
7 those issues, Dan, were specifically addressed in the
8 introductory comments. So we are going to ask you to hold,
9 we are not going to revisit that.
10 GUTTMAN: Okay. Fine.
11 STINSON: We are going to ask you to hold those
12 questions until the break. You and Don can talk.
13 GUTTMAN: Pursuant to the guidelines, it sounds
14 passionate, but it is a friendly --
15 STINSON: No, I am saying you and Don can talk.
16 GUTTMAN: Thank you.
17 STINSON: You and Don can talk at the break and
18 then if you have further questions, you can raise them here.
19 Okay. Let's start then with our Session Number 1
20 presentation, and we are going to ask you to be patient with
21 this first session. It is fairly lengthy, but, again, we
22 are trying to compress the information together so we can
23 get into the discussion. Trish.
24 HOLAHAN: Thank you, Barbara. Good morning,
25 again. As I mentioned, I am Trish Holahan with the NRC. I

1 would like to, in particular for those of you that did not
2 have the opportunity of being at some of the earlier
3 meetings, to walk through somewhat quickly as to why are we
4 here today and how does what we are trying to do today fit
5 into the overall picture. So I am going to walk through
6 some slides. I will pause part way through to see if there
7 are some questions of clarification before I continue with
8 the last. But, as Barbara mentioned, if you will please
9 bear with me, I will try and be relatively brief, so we can
10 at least then get into the dialogue.
11 The basic premise for why we are here is it is to
12 fulfill NRC's Congressional mandate and responsibility to
13 protect the public health and safety, and the environment.
14 And I would like to start off talking a little bit about why
15 we are here. You have heard some general statements from
16 Don Cool, and I would like to build upon those.
17 As we know, there are solid materials currently at
18 licensed facilities that will need some form of disposition.
19 These materials range from large amounts of radioactivity to
20 no activity at all. All of this material will ultimately
21 need to be disposed of by some safe means. Therefore, the
22 principal question that we are asking is, how should these
23 materials be handled? What should be done with them, in
24 particular, that material with small amounts of
25 radioactivity?

1 Should it all be buried in a licensed low level
2 waste disposal site? Or, alternatively, is there a safe way
3 to reuse or recycle some or all of these materials if the
4 radioactivity levels are low enough? Although there are
5 currently standards for disposing of material with large
6 amounts of radioactivity at licensed burial sites, there are
7 currently no generally applicable NRC regulations for
8 control of most of these materials with small amounts. We
9 know that there is a growing interest in the country today
10 in terms of recycle or reuse for those materials, where
11 possible, to conserve resources.
12 Licenses are still -- although there are no
13 regulations specifically for this material, licensees are
14 still coming in and seeking to release materials when they
15 are obsolete or when they are no longer useful, or when the
16 facility is being shut down or decommissioned.
17 In the absence of a standard, NRC has developed
18 guidance as to acceptable levels that are used by both the
19 NRC and licensees. So, currently, decisions are being made
20 on a case by case base. Although the guidance is considered
21 safe in and of itself, the lack of specific criteria causes
22 inconsistent release levels and, therefore, that results in
23 non-uniform levels of protection. You will hear more about
24 the current case by case and the existing guidance that is
25 out there is not based on doses, but was developed based on

1 detectability.

2 In order to address the limitations of this case

3 by case approach, NRC wants to consider all these issues in

4 an open, public forum and that will include a full analysis

5 of all the health and environmental impacts involved with

6 the situation, as well as evaluation of the related economic

7 aspects.

8 Let me go on to the next slide. Why NRC? Not all

9 the radioactive material is under NRC jurisdiction, but only

10 that material that is related to fuel cycle or that is made

11 radioactive in a reactor. The states regulate that material

12 that is naturally occurring or accelerator produced.

13 What is NRC's role and authority in setting these

14 standards? The NRC authority and responsibilities was

15 established in the Atomic Energy Act of 1954 and that was

16 then amended in 1975. And NRC issues regulations which

17 provide for the protection of public health and safety from

18 the use of radioactive material by its licensees. NRC

19 regulates and inspects the safe use of radioactive material

20 by its licensees to ensure that it is being used in a manner

21 that is adequate to protect public health and safety.

22 How does NRC interact -- what is NRC's role in

23 relation to where EPA, as Craig Conklin mentioned, what EPA

24 does, a little bit earlier, is that EPA does not regulate

25 licensees directly, but EPA sets generally applicable

1 environmental standards that NRC implements for radioactive
2 material under the Atomic Energy Act. However, EPA is not
3 currently considering rulemaking in this area, and in the
4 absence of an EPA standard, NRC has the authority to set
5 radiation protection standards for its licensees in this
6 area.
7 One of the questions that is being posed is, has
8 NRC made any decisions to date? Well, with respect to that
9 question, in terms of what we are going to do, the answer is
10 no. However, there has been some direction and some
11 guidance from the Commission over the last 18 months. In
12 June of 1998, the Commission issued direction to consider
13 rulemaking to establish a dose-based standard for clearance
14 of materials and equipment with residual radioactivity and
15 provide for enhanced public participation.
16 Subsequently, in June of 1999, the Commission
17 approved publication of an issues paper that includes
18 several alternative courses of action, which we will hear
19 more about a little bit later, and announced a scoping
20 process in the Federal Register for public comment.
21 As part of that, the NRC is holding these public
22 meetings, such as this one today, to solicit early input
23 from a variety of interested parties.
24 In September of 1999, the Commission directed the
25 staff again to proceed with the enhanced public process and

1 hold public meetings to solicit early input from the
2 interested parties in a collective forum and come back to
3 the Commission in March of 2000 on the results of the public
4 meetings, to include all the stakeholder reactions and
5 concerns, the status of the ongoing technical analyses, and
6 recommendations on whether to proceed with rulemaking or
7 other staff actions.
8 In addition, in that direction, the Commission
9 said that if a decision is made to proceed with rulemaking,
10 that the staff will then hold additional informational
11 stakeholder meetings on a preliminary version of a Generic
12 Environmental Impact Statement.
13 The one other question that we have raised, is
14 NUREG-1640 a standard, a draft NUREG-1640? And you will
15 hear more about that later from Bob Meck, but I just wanted
16 to pointed out at this point that it is not a standard, but
17 it is calculational tool and it is out as a draft currently
18 for public comment. And, as I say, you will hear more about
19 that in more detail later.
20 What process are we going to be using for this
21 decision-making? Well, let me compare a little bit first
22 with the steps in a typical rulemaking process. Typically,
23 following -- we seek early and substantive input from the
24 agreement states by development of what we call a rulemaking
25 plan, which sort of lays out different options as to how one

1 might proceed. Following Commission approval of the
2 rulemaking plan, we would develop a proposed rule, and as
3 part of that proposed rule, we would look at the
4 environmental aspects in accordance with the National
5 Environmental Policy Act, or NEPA, and also look at cost
6 benefits in accordance with a Presidential direction --
7 Presidential Order.
8 Following development of these documents, we would
9 publish the proposed rule, the environment analysis, or
10 Environmental Impact Statement and the regulatory analysis,
11 all for comment, and then consider all the public comments,
12 and we would prepare a final rule.
13 How does that differ in terms of what we are doing
14 now for an enhanced present? What additional steps for
15 early and continuing input are we looking at? Well, as I
16 mentioned earlier, we published the issues paper in a
17 Federal Register Notice. We have also put it up on the NRC
18 web site with the intention of providing an opportunity for
19 dialogue on all the alternatives. We are holding these
20 facilitated public meetings to discuss that paper and to
21 allow opportunity to share ideas and concerns amongst all
22 the interested parties.
23 We are going to be placing all the follow-on
24 documents and we have been with the transcripts, they are
25 currently up on the web site. Any other documents

1 associated with what we are doing are all on the web site,
2 and we have a web page for control of solid materials. And
3 if you are interested, I don't know if the web site is out
4 there, but we will make sure that you have the web site
5 address for that.
6 Also, there is public comment capability by
7 e-mail, through the web posting. We now have a dedicated
8 list server for this effort and there are, again, specific
9 instruments if you want to sign up for the list server.
10 And, again, that allows an opportunity for dialogue.
11 Also, we are going to be holding periodic open
12 working group meetings. As Don Cool already mentioned, from
13 here we are going to be looking at summarizing and analyzing
14 the public comments and preparing the Commission paper that
15 is due to the Commission in March. So some of the working
16 group meetings between now and the time that the paper will
17 be going forward will be open to the public and given
18 opportunity to hear how the comments are being summarized
19 and analyzed, and give additional input, opportunity for
20 input.
21 Also, there will be a Commission briefing in March
22 of 2000 and that Commission briefing is open to the public
23 and, again, will allow an opportunity for individuals to
24 provide input. One of the things that we are doing is
25 seeking other ways, if there are other suggestions that

1 people may have to enhance public input. We are open to
2 hearing other possibilities.
3 At this point, I think I would like to just make
4 sure, before I continue on, is if there is any questions of
5 clarification. You know, as I say, we would like to have
6 more discussion later, but at this point I am just looking
7 for clarification.
8 STINSON: Yes. So, specifically, any questions or
9 not getting into a lot of comments and registering of your
10 own views yet, but questions of clarification on either the
11 history or the process that is envisioned from this point
12 forward.
13 Tony, and then Dan and Charles.
14 LAMASTRA: Tony Lamastra, AISI. Trish, is the NRC
15 going to, or Meridian or someone, make some of these public,
16 like the Commissioners' briefing or some of the workshop
17 dates known ahead of time, as opposed to just putting it in
18 the Federal Register? Because a lot of times when we
19 finally get the Federal Register, it is like one or two days
20 before the meeting. Have you given any thought to how you
21 would publicize that perhaps by notifying the people that
22 have been involved in these meetings?
23 HOLAHAN: Yeah, I think one of the ways that we
24 could do that is through the list server that we have got
25 up. We could put on that, plus it would go onto the NRC's

1 public meeting web site to notice public meetings, that is
2 10 days before the meeting. And so as we are proceeding
3 with those specific meetings, again, the Commission
4 briefings, once the date for that is set, that would also be
5 put up on the Commission web page.
6 Frank, did you have something?
7 CARDILE: I would only add that, also, and we will
8 put the exact address, we have tried to simplify the web
9 site address, but we will try to keep that web site address,
10 the one specifically related to this effort, up to date and
11 well ahead on when any actual activities will take place.
12 We will put that address up on the screen at the break.
13 STINSON: What we are hearing so far is that this
14 web site is an improvement over NRC's general web site, and
15 it is a little quicker access, a little more accessible.
16 But, generally, the approach that is contemplated is to get
17 information out through the list server so people can access
18 it easily.
19 Now, you may want to make a recommendation of some
20 specific milestones in which, you know, a specific group of
21 people, say, the database for this group, be notified of
22 particular meetings. You know, assuming it doesn't get into
23 orders of, you know, 20-30 meetings that have to noticed,
24 you know, maybe NRC would entertain that kind of idea.
25 Dan.

1 GUTTMAN: Yeah. Following up on this transparency
2 question.
3 STINSON: Dan, you are going to have to mention
4 your name.
5 GUTTMAN: Dan Guttman from PACE, with PACE, on the
6 transparency question, Trish. First, as we understand --
7 STINSON: A little bit closer. I'm sorry.
8 GUTTMAN: As we understand it -- is that better?
9 STINSON: Yes.
10 GUTTMAN: God, it sounds like I am --
11 STINSON: I know. You have to echo or it is not
12 working.
13 GUTTMAN: -- involved in some indecent action with
14 this microphone.
15 GUTTMAN: As we understand it, in fact, the
16 regulatory options paper and the issues paper here were not
17 prepared by you folks, but pursuant to the contract with
18 SAIC, were prepared by a private contractor, if they
19 complied with their contract, and I assume that's the case.
20 Two, you mentioned last time that you had not
21 prejudged this issue, but as you know, it now turns out that
22 the August, 1999, renewal of the SAIC contract locks in the
23 June 30th staff memorandum, and I want to know if you've
24 changed that and when you've changed it.
25 Three, as you know, in October, you received a

1 letter, the NRC did, from a number of Congressmen, PACE, and
2 the Natural Resources Defense Council wrote to the Tennessee
3 Authority about whether the ongoing recycling, your major,
4 current recycling in Oak Ridge has any lawful basis.
5 This was two months ago, nine months after the
6 license. As far as we know, there is no response.
7 So in terms of the process, the basic question is,
8 when are we going to get some transparency as to what is --
9 who is doing the basic work here, and whether, in fact, the
10 Commission has the ability as a matter of competence, to
11 construe its regulations so that we should know whether
12 we've got and what the playing field is.
13 CARDILE: Just for a point of clarification, I
14 prepared the issues paper that you see in the office,
15 assisted by the Working Group members that you see here
16 today, and then reviewed by the Steering Group members.
17 GUTTMAN: Well, then, you have false claim because
18 SAIC was paid, apparently, by your contract office to
19 prepare it, and I think that you should -- and I would like
20 to ask that that be added to the General Counsel's
21 investigation, why they were contractually hired and
22 presumably paid to do it if they didn't do it.
23 STINSON: We may be talking about two different
24 items here.
25 GUTTMAN: I'm talking about the issues paper

1 underlying this whole NUREG business.

2 STINSON: Okay, Don, do you have some comments?

3 COOL: I think I have a couple points of quick

4 clarification that are probably important.

5 Dan, I'd like to suggest we get together at the

6 first break.

7 GUTTMAN: I'd be happy to.

8 COOL: There are maybe a couple things that we can

9 sort out where we don't need to involve a lot of other

10 folks' time.

11 As I mentioned a little bit earlier, the Staff has

12 prepared and the Commission is currently reviewing, a

13 response to Congressmen Dingell, Markey, and Klink, and I

14 expect that that will be delivered to the Congressmen and

15 made public within the next couple of weeks.

16 STINSON: Okay, why don't we take a moment to

17 allow Cliff Honnicker to introduce himself. He has joined

18 us, and then we're going to continue with the comments on

19 the process.

20 Cliff? If you don't mind, Cliff, we're asking you

21 to mention your name and your affiliation.

22 HONNICKER: Sure. My name is Cliff Honnicker, and

23 I'm the Director of the American Environmental Health

24 Studies Project, and we're based in Knoxville, Tennessee.

25 We work with a number of the workers in Oak Ridge

1 who have worked around this radioactive nickel powder that's
2 part of the barrier recycling effort.
3 And we bring to this meeting, a firsthand
4 knowledge of the human effect, not the theoretical, not the
5 proposed, not the future effect, but the actual ongoing
6 effect to humans right now as a result of these operations.
7 And it's not good, to tell you the truth. I also
8 come representing Jeanine Honnicker, who is my mom, who any
9 of you old timers around here probably remember her from the
10 1970s when she fought what was going to be the world's
11 largest nuclear plant, and with a $50 calculator, pretty
12 much brought it down to a standstill.
13 But about 20 years ago, she was here with the
14 Nuclear Regulatory Commission when you had NUREG 518 in
15 1980, proposed recycling of the radioactive nickel. So I
16 brought her comments from 1980 to share with you guys, a
17 sort of Ghost of Christmas Past.
18 And then I brought my attempts, my futile attempts
19 to get the information from you guys, the very basic, simple
20 information that goes into how these proposed regs were
21 done. My request to you guys that were like my mother's
22 request, and the 5,000 other comments from 1980 that went
23 un-responded to, my requests for information have gone
24 unanswered.
25 And I brought that, and then for the Ghost of

1 Christmas Future, I'm going to give all this to my kids, and
2 so 20 years from now when you all bring this effort up
3 again, they'll be able to have the materials and say, hey,
4 it looks like about every five or ten years, you guys keep
5 trying to trot this dog out, and this dog is just not going
6 to hunt.
7 But anyway, that's what I bring.
8 STINSON: Okay, we are at the point of taking
9 questions of clarification on the introductory remarks made
10 so far about history and process. It's Charles and then
11 Mike Mattia, and then Jas.
12 WILK: I'm Charles Wilk with the Portland Cement
13 Association. This is probably a very basic question.
14 Trish, you mentioned who are the licensees of the
15 NRC. Could you repeat that? I assumed it was power plants,
16 but there are some other things including accelerators, or
17 not including accelerators, and how does that relate to the
18 Department of Energy activities in taking apart their
19 facilities?
20 HOLAHAN: Okay, well, if I can ask you to hold
21 part of that question for actually my next slide, I'll get
22 more into the specifics of what the licensees are.
23 But NRC has specific licensees. We do not
24 regulate DOE facilities. And then the agreement states --
25 I'm sorry, all the states, regulate naturally-occurring and

1 accelerator-produced materials.

2 NRC regulates reactor-produced material, and

3 material regulated under the Atomic Energy Act.

4 STINSON: Okay, quick questions, just the cards

5 that are up. We're moving on in this discussion. We've got

6 more presentation and information to provide.

7 MATTIA: Just a quick clarification: I understand

8 that this rulemaking was first in the hands of the EPA who

9 then declined, and then it passed on to the NRC.

10 The question is, what authority and responsibility

11 in this process is retained by the EPA, as well as the

12 agreement states?

13 COOL: This Don Cool. Very briefly, the EPA

14 continues to have its authority under the Atomic Energy Act

15 to promulgate what are referred to as generally applicable

16 environmental standards.

17 If they went through a rulemaking process and did

18 so, the NRC, as other federal agencies, would be obligated

19 to look at those.

20 With respect to the agreement states, the

21 agreement states will be working with us, and will have to

22 look at corresponding regulations within their particular

23 states, and part of the issues that are, in fact, on the

24 table, are what are referred to as adequacy and

25 compatibility in terms of the designations of how close, how

1 similar to the NRC activities, and should a rulemaking be
2 done, the states' individual standards would need to be.
3 STINSON: Okay, Jas?
4 DEVGUN: Jas Devgun. I think my question is
5 related to where the outcome of all this exercise will show
6 up. Would it be part of the 10 CFR 20, somewhere as a
7 revision to that? For example, as the license termination
8 rule ended up as 1401 to 1406 in 10 CFR 20, so where would
9 you see it fitting in?
10 Ultimately, the criterion is going dose-based,
11 whether it's going to be one millirem or whatever you come
12 up with. That's going to be a dose-based criteria.
13 ERICKSON: I think that at this point we're still
14 not -- we're at the point where we're trying to make the
15 decision as to whether or not we would proceed with
16 rulemaking.
17 So I think that in terms of saying that it would
18 be a dose-based criterion is premature because at this
19 point, we are still in the exploration stages of what we
20 should be doing and whether or not we would go.
21 If we did choose to proceed with rulemaking, most
22 likely it would be in Part 20, but that this point, that
23 decision hasn't been made.
24 STINSON: Kristin?
25 ERICKSON: Kristin Erickson, Michigan State

1 University.

2 First part, I have a comment on the input process

3 itself, and I think that could be enhanced by utilizing some

4 of the groups that are already existing in the country, an

5 example being the academic and medical. It's a very

6 informal group, and there are 150 of us all over the nation

7 on that focus.

8 And there are other groups in the Environmental

9 Group Center. Utilizing those groups via e-mail lists or

10 through a representative who channels the information to

11 that group, like I will do with our group, that's one good

12 way. It reaches a lot of people of the affected parties, in

13 a very cheap, quick manner.

14 My second comment has to do with comments that I

15 have been making for years. In fact, here in Chicago during

16 the strategic initiatives, direction-setting issues a few

17 years ago, I complained, as to many of my peers, about two

18 parts of the way that NRC rules typically take place.

19 We laugh and we call it the ready, fire, aim,

20 approach, which means you make a rule, you set it out there,

21 and then let the chips fall where they may, and then fight

22 through the problems.

23 And that has been difficult. I commend the NRC

24 and the whole process this time, in that it's not done that

25 way. We're bringing all of the comment and the groups

1 together before we actually have made a rule and before you
2 say, okay, this is out for comment now, and everybody just
3 come in here and tell us what you think of what we've
4 already decided, without including the groups and the
5 industries.
6 So we're very happy about that. Finally, related
7 to that, the comment that I made back then and that I see an
8 improvement on already, is the mixed message issue where you
9 say, for example, these things are very safe at these very
10 low levels, whether it be liquid, solid, or air.
11 And then at the same time, we have a huge knee
12 jerk reaction at some small release of amounts that are even
13 less than we naturally have in our own bodies, many times.
14 So I think that this whole process, in the direction that
15 it's going, and if it's kept open and healthy like this,
16 will ultimately improve on some of those problems.
17 STINSON: Could we have a comment on the comment
18 made on EPA authority?
19 CONKLIN: Yes, I just wanted to add that it's true
20 that we got involved in this process several years ago, and
21 as going through some of the technical evaluations and the
22 assessments that we did, and in our working with the folks
23 in the industry and the environment and other groups, other
24 regulators in DOE, it came to our attention that a lot of
25 the risk associated with the recycling of metals and

1 reintroduction of materials into commerce, that one of the
2 bigger risks was from materials coming from overseas.
3 And what we've done is make basically sort of a
4 risk management decision. We have limited resources,
5 limited people, limited funding to do contracts and to do
6 these technical assessments, and have decided to put our
7 efforts towards that arena. That's why we're working with
8 Gwendolyn Bauer and the State Department on an international
9 level and in the IAEA and others to take a look at the
10 international scene where we think more risk may be coming
11 our way, if you will.
12 STINSON: Okay, thank you for that clarification.
13 Okay, let's move on and hear the rest of Session 1
14 presentation, and then we'll open it up for further comments
15 or questions that you may have, and then comments around the
16 table.
17 HOLAHAN: Thank you. I'd like to now move into
18 the question, actually, that Charles raised? What NRC
19 licensees and what types of solid materials are we talking
20 about?
21 Most of NRC's licensees are users of sealed
22 sources in which the radioactive material is encapsulated.
23 These licensees would typically have, or sources would
24 typically have no radioactive contamination associated with
25 them.

1 This would include the small research and
2 development facilities, industrial users such as gauges,
3 radiography sources, and so those sources would be disposed
4 of appropriately, but the materials around which they are
5 used would not be contaminated with small amounts of
6 radioactivity.
7 For other licensees such as reactors, research
8 laboratories, hospitals, manufacturing facilities, the
9 materials would generally fall into three types of
10 categories:
11 There will be areas that will have no
12 contamination. This would include clean or unaffected
13 areas, equipment in clean warehouses, hospital waiting
14 rooms, university office areas, metal ventilation ducts in a
15 control room in a reactor, for example.
16 Secondly, there would be process or storage areas
17 that may have materials with small amounts of radioactivity,
18 and these would be low because of contamination control
19 procedures, primarily, as well as just the uses in those
20 areas, and decontamination activities as well.
21 This would include certain lab areas in a
22 university, for example, or a research facility; certain
23 reactor buildings.
24 Finally, in the third category that's not listed
25 on the slide -- and I apologize, but it's material that's

1 used for radioactive service where there could generally be
2 higher levels of radioactivity, and these typically wouldn't
3 be considered as candidates for release unless there is some
4 significant decontamination activities that would remove the
5 bulk of the contamination.
6 The types of materials, and one of the questions
7 we have been asked is what materials should be considered
8 and should they be considered now, or should we address
9 certain materials now and then continue to look at other
10 materials later, such as wood, glass, sewage and sludge.
11 The amount of radioactivity that a material has --
12 let me go back a second. I'm jumping ahead of myself. So
13 far NRC has developed the technical background information
14 for metals, specifically steel, aluminum and copper,
15 concrete as well as soils, and these seem to be the most
16 likely to become available and represent most of the volume
17 of the slightly-contaminated materials that might be
18 available for release.
19 These materials would found on facility equipment,
20 piping, furniture, buildings onsite, and therefore that is
21 currently what our focus is. As I mentioned when I jumped
22 ahead of myself is should there be other materials that we
23 should be considering now or look at it later, such as
24 glass, sewage, trash, we have heard at several other
25 meetings. What other materials are really out there? As

1 Barbara mentioned earlier, these are the types of questions
2 that we really want to focus on and look at exactly what
3 materials should be looked at, what materials are out there
4 and look at a variety of different materials.
5 The next slide tries to put in some context what
6 types of doses we are talking about and how it compares to
7 the doses received from other sources. In the issues paper
8 that I mentioned earlier that was published in the Federal
9 Register, one of the alternatives discusses potential dose
10 criteria of zero, .1, 1 or 10 millirem per year.
11 How does this compare with other doses that are
12 currently allowed or considered by various agencies? NRC's
13 public dose limit is 100 millirem per year, and that is a
14 limit at which we believe the public is adequately protected
15 from licensed activities. In addition, EPA allows the use
16 of coal ash recycled into concrete blocks at 10 millirem per
17 year. For a point of reference, NCRP -- or the National
18 Council on Radiation Protection and Measurements --
19 considers 1 millirem per year as a negligible individual
20 dose or a level below which the dose can be dismissed for
21 consideration in risk calculations.
22 One millirem per year is also consistent with the
23 international community -- that is, the International Atomic
24 Energy Agency as well as the European Commission, which
25 established 1 millirem per year as a criterion for

1 exemptions and for release of limited quantities of
2 material.
3 How does this compare -- we heard Kristin talk
4 about some of the natural background and what is in our
5 bodies -- and other man-made sources, and in the next graph,
6 as you can see, it is a bargraph. The orange bars are what
7 is naturally occurring and the blue bars are man-made
8 background radiation. What the bars don't show are the
9 variability amongst each of these.
10 As you can see, the bulk of the background
11 radiation does come from naturally occurring and is on the
12 order of about 300 millirem per year. Radon is a large
13 component and varies greatly depending on where you live and
14 the type of building and things you live in. There is also
15 an internal dose received naturally from foods that we eat
16 and drink, primarily due to potassium, and that is on the
17 order of about 40 millirem per year -- and that is pretty
18 much a constant steady state.
19 There is also natural exposure from soil and
20 building material which again varies greatly on the type of
21 house you live in, whether you live in a brick house --
22 because of the natural occurring thorium and uranium -- and
23 that is on the order of again about 30 millirem per year but
24 will vary.
25 In addition, there is exposure to cosmic

1 radiation, which again varies. It is much higher in the
2 Rockies, for example, rather than at sea level. On average
3 across the country though it is on average about 30 millirem
4 per year.
5 For the man-made radioactivity, a large component
6 results from x-rays and nuclear medicine and depends on the
7 type of medical studies that you may get. Again there is a
8 range. The average for all medical procedures is about 60
9 millirem per year, but depending on if you have a certain
10 procedure you will get a much higher dose. If you are just
11 having a diagnostic x-ray the dose will be much lower.
12 There are also a number of useful consumer
13 products that we have in our homes -- smoke detectors,
14 watches, for the campers a thorium mantles and the Coleman
15 lanterns that all are associated with radiation and have
16 small amounts of radiation -- so I just wanted to give you
17 some idea of the other sources of radiation that we are
18 exposed to on an ongoing basis.
19 Some of the other questions that we have related
20 to and we have touched a little bit on, EPA and DOE, is what
21 are other countries, agencies and our states doing with
22 regard to the control of solid materials? Well, as we have
23 heard already, and I will just skim over this again quickly
24 because we have heard about this, is EPA is not currently
25 considering rulemaking.

1 They have completed technical studies on the
2 environmental impacts of recycling, but as Craig Conklin
3 mentioned they are working with the IAEA and the Department
4 of State, the import/export issues associated with materials
5 coming in and out of the country.
6 NRC and EPA however do have coordinated efforts in
7 this area and we are working closely with them.
8 The Department of Energy operates facilities that
9 are facing similar issues regarding the disposition of solid
10 materials and DOE has developed criteria that is in line
11 with NRC's existing guidance.
12 Also, what is happening on the international front
13 is also important as we go forward and consider what we are
14 doing because we need to consider the consistency with
15 standards set by other nations and international agencies
16 because of the important export considerations, and that
17 different standards could create confusion and economic
18 disparities in international trade.
19 As I mentioned, the IAEA and EC as well as
20 individual nations are all considering setting standards and
21 the European Commission plans to implement a 1 millirem per
22 year standard by May of 2000 for clearance of metals.
23 The states, as Steve Collins and Cindy Cardwell
24 and Alice Rogers, all representing different states here,
25 but individual states have responsibility for naturally

1 occurring and accelerator-produced material and there is an
2 Organization of State Radiation Agencies that has
3 established a committee -- and I will just say CRCPD.
4 Thanks to Steve -- he has already said what that is.
5 All states have the authority to release what we
6 call NORM and NARM, Naturally Occurring and Accelerator
7 Produced, solid materials that are not regulated by NRC.
8 In addition, 31 states have assumed regulatory
9 authority for Atomic Energy Act material and NRC has
10 relinquished their authority by agreement, and these states
11 can also approve release of AEA solid materials.
12 As we are looking at this issue, we need to
13 consider what is the need for consistency among state
14 standards and the fact that there may be material that is
15 available for use in one state other than where it was
16 actually released.
17 At this point now I would like to again see if
18 there's any questions of clarification on these last few
19 slides that I have gone through and then maybe open it for
20 dialogue amongst yourselves to continue the discussion of
21 some of these issues.
22 STINSON: Okay, Cliff?
23 HONNICKER: Yes. I brought with me the 1980 or
24 1981 comment by the EPA. I wanted clarification. Are they
25 not considering rulemaking or is it because in the past at

1 least they have soundly rejected the notion of recycling
2 this radioactive metal, and they rejected it on the basic
3 principle that underlies the foundation of the nuclear
4 industry in health physics, which is the principle of ALARA.
5 For all of you who are not nuclear people, ALARA
6 means As Low As Reasonably Achievable, and radiation
7 exposures in the workplace, in the community should be as
8 low as reasonably achievable.
9 If you are disseminating any radioactive material,
10 however slight, and it is preventable, then that violates
11 the principle of ALARA. That is one of about a dozen
12 reasons why EPA rejected this effort to release this
13 material 20 years ago.
14 I am wondering, has EPA's position changed on this
15 or when you said they are not considering it, had they in
16 fact rejected it?
17 STINSON: Let's let EPA answer to that question.
18 Craig Conklin?
19 CONKLIN: We have not taken a position on this
20 issue as of this time. We are sitting here going through
21 the public meetings and listening to the comments.
22 One of the other things I need to bring out is
23 that I only joined the agency back in 1989 so what we did in
24 1980 I am not fully versed in, and in order to really answer
25 that question I would have to go back and look at the 1980

1 comments that we made and responses to that activity.

2 HONNICKER: I am going to pass that out later. I

3 brought that with me.

4 CONKLIN: All right. I'll be glad to look at the

5 history there and then make a response after that, once I

6 can take a look at that.

7 STINSON: Mike and then Paul.

8 MATTIA: Just a two-part clarification. How does

9 what the NRC is proposing, a rulemaking, how would that

10 affect material that could be released under the control of

11 the DOE and also material that is under control of the

12 Department of Defense or the military.

13 The second part is we have heard a great deal

14 about what has happened in Tennessee and their decisions.

15 In theory, if a rule were to be passed tomorrow by the NRC

16 on release, how would this rule affect the decision of a

17 state such as Tennessee or any other state that up until

18 that rulemaking has made a decision on release?

19 STINSON: Don?

20 COOL: To try and very quickly answer those

21 questions, while we do not have direct regulatory authority

22 over the Department of Energy I would expect that they would

23 look at this standard as they look at EPA standards and what

24 is going on internationally, otherwise -- in setting what

25 would be done within the Department of Energy, so there is

1 clearly an influence although not a direct eight-chain line
2 that you could draw that says we'll do this, we'll do this,
3 we'll do this.
4 For the Department of Defense there is actually a
5 split answer. For some of their materials, in the weapons
6 programs and others, that would be worked with the
7 Department of Energy for those activities. A number of the
8 activities within the Department of Defense, and I am sure
9 our friends from the Army would elaborate if you would like,
10 are in fact licensed by the Commission and would therefore
11 be directly impacted by these regulatory activities.
12 The third -- the state of Tennessee and other
13 Agreement States participating in this process, if you move
14 down to an endpoint, if you assumed for a moment a
15 rulemaking activities that was resulting, then each of the
16 states would need to move to adopt adequate and compatible,
17 comparable regulations. At the completion of that process,
18 that would then establish in regulation in Tennessee, in
19 Texas and Illinois, and each of the other states, the
20 regulation which would then govern whatever licensing action
21 might take place.
22 STINSON: Okay. Paul and the -- Peter? Do you
23 want to answer to the DOE question? You are going to have
24 to use your microphone though. Pull it a little closer to
25 you and state your name.

1 LILLY: Yes, I am Jud Lilly, with the Department
2 of Energy. I have two points that can add to I think what
3 Don was saying.
4 The first part is the DOE oftentimes releases
5 materials to NRC licensees and then in those instances -- or
6 the licensees of Agreement States. In those instances the
7 NRC requirements would be directly applicable if title has
8 transferred to the -- so if the material is owned by the
9 licensees.
10 On the second point, I believe there is a
11 commitment of the department if the NRC does set a standard
12 in this area the Department will adopt that within the
13 Department's regulatory structure as well, so those are the
14 two points.
15 STINSON: We're going to take the cards that are
16 up on this issue and then take our break. That ought to
17 take us well past our break time.
18 GENOA: Paul Genoa with NEI. I would ask for a
19 perspective, to help us with a perspective. I would ask
20 what the agreement states allow, for instance, in the
21 recycling of scrap pipe that has NORM contamination from the
22 oil and gas industry?
23 Are there standards -- and maybe Steve could
24 address this -- are there standards today?
25 And of what magnitude are we talking about?

1 STINSON: Cindy?

2 CARDWELL: Many of the states have already
3 addressed this issue in that as Patricia said earlier, for
4 NORM materials and accelerator-produced materials, the
5 states have that jurisdiction in terms of setting the
6 standards for that.

7 And many, many of them have, and they do vary from
8 state to state. So I can't give you a blanket answer as to
9 what levels those are.

10 I think there has been a table prepared, if I'm
11 not incorrect here, by NRC, that sort of shows a rough
12 outline of what the different states have done in terms of
13 setting those standards for those materials for release.

14 And a lot of times the states don't really refer
15 to them as recycling, but as release.

16 GENOA: That would be helpful if that was made
17 available to us for perspective.

18 STINSON: Okay, Peter Hernandez?

19 HERNANDEZ: Thank you. I'm Peter Hernandez, AISI.
20 Trish, I wanted to ask for a clarification. You mentioned
21 standards that are being set by a number of organizations.
22 You mentioned IAEA, you mentioned the EU, the European
23 Union, individual countries.

24 Could you explain if those are legally binding
25 standards, the way NRC's standards would be legally binding?

1 HOLAHAN: The standards set by the EU are --

2 STINSON: Just say your name first, Trish.

3 HOLAHAN: I'm sorry, it's Trish Holahan.

4 -- are legally binding for the countries that are
5 in the EU. The IAEA just sets standards for consideration
6 for adoption by the other countries. Maybe can Don can add
7 to what the IAEA standards are.

8 COOL: Very briefly, because we could spend a long
9 time. This is Don Cool.

10 The International Atomic Energy Agency sets what
11 they call their basic safety standards and a number of
12 safety guides which actually bear some similarity to NRC
13 Regulatory Guides.

14 Those standards are generally available to all of
15 the members of the IAEA. There are some 161 countries.
16 It's a UN organization.

17 For those countries referred to as member states
18 that are receiving assistance from the IAEA as part of those
19 programs, their adoption of the basic safety standards
20 pretty much becomes mandatory for those countries.

21 Most of the large, developed nuclear program
22 countries, the United States and many of the countries in
23 Europe, are not directly receiving assistance, so while
24 those are out there as reference points, they are not
25 legally binding to the U.S.

1 The EU that we referred to just a minute ago, that
2 is actually by treaty, and then each of the countries by
3 treaty adopt their national standards which have to be in
4 conformance. And that is, in fact, the treaty date in May
5 of 2000 when each of the members of the EU have to move to
6 adopt the new set of European Commission standards.
7 HERNANDEZ: Thank you. I had just a quick
8 followup. We have been participating in the State
9 Department IRSM as well. And at the last meeting, a
10 representative from the IAEA indicated that their governing
11 board had decided not to move forward with any standard, if
12 you will, but instead to adopt simply a consensus type
13 document that would be very voluntary.
14 That's why I was asking for the clarification.
15 Does IAEA, in fact, set standards, or are they simply
16 recommendations? Thank you.
17 STINSON: Alice?
18 ROGERS: I'm not quite sure --
19 STINSON: Name and affiliation.
20 ROGERS: I'm Alice Rogers. I'm with the Texas
21 Natural Resource Conservation Commission, which is probably
22 the agency with the longest name ever known.
23 I'm never quite sure when to make comments, so if
24 I have already missed it or it's coming up later, I do
25 apologize for that.

1 But the tone of this conversation, this talks,
2 seems, at least to me, with ten years experience in
3 hazardous and solid waste management, to have forgotten that
4 when you release materials under the NRC's jurisdiction,
5 that they are still solid wastes and they are still subject
6 to state and federal solid industrial and/or hazardous waste
7 planning and other regulatory concerns.
8 So I would urge you to continue to work closely
9 with EPA, but also to bring the Association of State and
10 Territorial Solid Waste Management Officials, also known as
11 ASTSWMO, to the table.
12 There are some significant issues, especially in
13 the municipal solid waste landfill business, because those
14 landfills are usually run by small local governments who
15 have insufficient funding -- something they will always tell
16 you -- to do put in radiation detection monitors and to know
17 what to do when they have incidents.
18 And also they would have to change the groundwater
19 monitoring suites and would have to do different kinds of
20 groundwater monitoring.
21 And then I think that other states do this, but
22 Texans believe that Texans should take care of Texas, and so
23 as part of that, we have significant solid waste planning to
24 make sure that we have the right number of landfills, not
25 too many, not too little, to take care of Texas waste.

1 And so when you start releasing these materials
2 from the NRC's jurisdiction, then one could assume a good
3 portion of that would be going to the solid waste management
4 facilities, and/or landfills, and so that would change our
5 statewide solid waste planning.
6 And then lastly, I'd just like to say that I
7 really do believe in rulemaking because that gives you the
8 opportunity to do the analyses, the very complicated
9 analyses that you've asked all these questions about in the
10 Federal Register.
11 STINSON: Thank you, Alice. Let me say
12 specifically that ASTSWMO has been -- that's the acronym for
13 the association that she mentioned -- has been actively
14 engaged by Meridian to participate in these processes. And
15 they did have a representative from Colorado, Jeff Deckler,
16 at the last meeting.
17 And we're so happy to hear that you're interested
18 in the solid waste issues and can represent those concerns
19 for this meeting. That will be very helpful, and we can
20 tell you who we've talked to from ASTSWMO if you want to
21 report back there.
22 Bill Lipton and the Kristin Erickson.
23 LIPTON: Okay, Bill Lipton, Detroit Edison.
24 The concept of ALARA has been invoked here, and I
25 just wanted to clarify that that is as low is reasonably

1 achievable, and that is to prevent any radiation exposure
2 that you possibly can; it implies --
3 If you read the definition, it's economic and
4 social factors that are taken into account, and it implies
5 reasonable risk versus benefit analysis, not just the
6 prohibition of all radiation exposure.
7 STINSON: Thank you. Kristin?
8 ERICKSON: I second what Bill said. This is
9 Kristin Erickson, Michigan State University.
10 I would like to expand upon that just a little
11 bit, because that was going to be my comment, that ALARA, as
12 applied, is actually a process. It's a professional
13 standard of excellence, and it's tied into our license. We
14 committed to ten percent of any limit.
15 What this means, though, for those of you who are,
16 I guess, not doing this every day, is like on our campus
17 where we have several thousand people and 800 or a thousand
18 rooms.
19 Let me give you an example: We decommissioned an
20 entire building, and in that building, we found finally in
21 one lab, underneath a refrigerator, a spot of Carbon-14 with
22 about 1/10,000th of the amount that we find in any normal
23 human body who has no uptake of manmade.
24 Under the preventable, we would have to secure
25 that room, and not release it. As applied in ALARA, we can,

1 because we can look at the amount, we can look at the risk,
2 and we can look at the ultimate outcome.
3 Now, we didn't do that, in fact, in that case. It
4 came out easier for us to chunk out that tiny piece with a
5 screwdriver. So we do ALARA, even when it's not necessary
6 because we were concerned about the contractors who were
7 going to come in. And if they heard by the grapevine that
8 anything was there, they would be terrified, partly because
9 of our message of any radiation is deadly, any radiation is
10 dangerous.
11 Part of what I think this whole process will
12 achieve, if it's done right, is to come up with some numbers
13 that are reasonable risk, acceptable, and usable in a
14 practical way by anybody, and also understandable by the
15 public. That's a critical factor.
16 Then, finally, my two short things I would like to
17 add a couple of things to this list, and I think we should
18 add activation products, mixed waste and lead. Where's
19 lead?
20 I spent two weeks in my waste building last month,
21 literally surveying tons upon tons upon tons of lead that
22 has been stored and squirreled away there for 14 or 20 some
23 years because nobody knew what to do with it. And this is
24 problematic.
25 STINSON: I think we've heard now the addition of

1 nickel and lead to our potential list of materials to
2 explore.
3 I stated earlier that we would take the cards that
4 were up, and I think Dan and Jim were the ones left. We
5 want to hear your comments, but maybe we'll go ahead and
6 stick with the break time, and then come back, if you still
7 want to make your comments.
8 Dan?
9 GUTTMAN: Thank you. I'd like to follow up on
10 what Kristin --
11 STINSON: Dan, just mention your affiliation,
12 please.
13 GUTTMAN: Dan Guttman from PACE. First of all,
14 PACE represents the workers, is the primary representative
15 of the hourly workers at the Department of Energy Nuclear
16 Weapons Complex, as well as many industrial sites where
17 radioactive materials are used. It's probably true, and
18 this isn't a boast, but it's unfortunately reality, that
19 PACE members work as near to all kinds of levels of
20 radiation as any population in this country, and probably
21 any population outside of Russia.
22 So we're not talking about a group of people who
23 have an innate hysteria about low-level radiation. Having
24 said that--
25 STINSON: Just stay close to the mike, if you can.

1 GUTTMAN: Having said that, my question is, it
2 appears to me, Trish, with due respect, the chart and graph
3 you presented here are fallacious and really should be
4 corrected promptly.
5 How does a potential radiation dose from a
6 standard compared with the dose received from other
7 radiation sources, and then we have the bullet, comparison
8 with natural background.
9 As you folks from the Academy presented correctly,
10 of course, the point is that we all experience natural
11 radiation. The reality, as we have now heard, is one way or
12 the other, by hook or by crook, by laundering, as the BNFL
13 folks did, or by actual lawful activity, the NRC rule is
14 going to govern the Department of Energy, which is the
15 lion's share of all the junk we're talking about.
16 Secretary of Energy Richardson has courageously
17 just announced repeatedly that after 50 years, our workers,
18 as well as folks in the communities, have been misled, lied
19 to, and have no clue as a result of what doses they have
20 been exposed to, and the exposures are pretty clearly above
21 and beyond what was said.
22 Mike Mobly, who many of you know from Tennessee,
23 who just retired, repeatedly said, as the person with the
24 primary state oversight for Oak Ridge, that monstrous source
25 of radioactive materials, that letting stuff offsite, sure.

1 The folks at DOE and the contractors, a little hot spot,
2 that would pass unnoticed, what's the big deal? It gets
3 lost.
4 So here is my question, Trish, and I'd like you to
5 think about this over lunch: Are you going to retract the
6 statement that how does a potential radiation dose from a
7 standard assume that, in fact, the standard will be honored
8 and complied with?
9 We know for a fact, the Administration, the
10 President of the United States' Secretary of Energy has said
11 you cannot make that assumption in the case of the waste
12 we're talking about here.
13 The head of Tennessee has made that statement. We
14 all know as common sense, he has made that statement. It's
15 really misleading to tell all these folks that a standard
16 will equate to background radiation when I could tell you it
17 would be 50, 60, 100 times what the reality is, and we don't
18 have a clue.
19 So when you make this presentation in the future,
20 can you say that at least I can't talk about the fine folks
21 who are running nuclear power plants at Detroit Edison or
22 Consumers or whatever the name is today --
23 STINSON: You've got to talk into that Mike, Dan.
24 GUTTMAN: It's still Detroit Edison or it used to
25 be anyway. But it's clear that you can't make that

1 presentation for the bulk of the waste. We have no idea
2 what the relation of a potential standard to be the
3 potential dose; isn't that correct, in reality?
4 STINSON: One of the things we are going to talk
5 about --
6 GUTTMAN: Unless you've got some data that you can
7 present, which you haven't.
8 STINSON: One of the things that we're going to do
9 is talk later this afternoon about control mechanisms for
10 trying to assure that the controls are in place, and reduce
11 the reasonable occurrence of accidents and other kinds of
12 activities, but maybe -- do you have anything specific you
13 want to say?
14 I mean, we're going to get to the questions that
15 you've raised, Dan, and maybe there will be questions that
16 you have after that, that will take the NRC towards further
17 investigation.
18 GUTTMAN: I would just like to request that this
19 be withdrawn and not used in further presentations because
20 it's extremely -- unless there is a footnote saying we have
21 no clue as to most of the waste.
22 STINSON: Jim Turner?
23 TURNER: Jim Turner, Ameristeel. I have a
24 question that is probably pretty simple and basic, and then
25 I have a comment from my own experience.

1 The question is -- and you may have answered this
2 before -- is there a direct relationship between
3 concentration and dose? And my comment is, I think the
4 steel industry cleanups, at least the ones I have been
5 familiar with, are based on concentration.
6 And instead of ALARA, I'd say it's ALUHA, as in
7 unreasonably achievable.
8 I'm familiar with incident-related material
9 cleanups that are down to the two picocuries per gram for
10 concrete, soil, dust, and so forth.
11 So I just wanted to point that out. They've
12 taken, the last one, five years and $15 million to complete.
13 I'm interested in the relationship between dose and
14 concentration.
15 HUFFERT: That will be discussed in the next
16 session with Dr. Mack.
17 STINSON: Okay, good. Steve, you're going to save
18 your comment. Cliff, if you'd like to do the same, we can
19 come back. Is that okay?
20 COLLINS: Yes.
21 STINSON: Okay. We'll take our break now, and
22 return for a little bit of further discussion and the
23 opening of Session Number 2.
24 [Recess.]
25 STINSON: Okay, let's get started, if we can,

1 please. Let me just call your attention to the slide here.
2 It does contain the new modified, highly improved address
3 for the Web site. You should be able to download documents,
4 even such as NUREG-1640, which is quite extensive, but a lot
5 of historical documents: all the meeting summaries from
6 these meetings; all of the technical information submitted
7 in support of these meetings. If there were comments
8 submitted electronically, they're posted. Obviously, those
9 in paper weren't posted and all the transcripts for the
10 meeting, as well.
11 What we want to do now is take Steve's comment,
12 see if there are any other very brief final comments on
13 session two, and then take any opportunity for members of
14 the public or the observers in the back of the room to offer
15 some observations or ask any questions they might have.
16 Steve?
17 COLLINS: Steve Collins, CRCPD. Actually, my
18 comment was for Peter Hernandez. I believe -- and he's out
19 of the room -- he asked a question about norm criteria and
20 stuff.
21 STINSON: That's right.
22 COLLINS: I was going to mention that there is a
23 private consultant, Peter Gray of Peter Gray and Associates,
24 who puts out a little newsletter roughly quarterly, which
25 actually has a listing of the norm criteria for each one of

1 the states and then every quarter, he kind of provides an
2 update or summary of the changes that are occurring or being
3 proposed in each one of those states. So, if it's in the
4 naturally occurring way -- I mean, that's a good source of
5 the information that he was asking about. I'll try to catch
6 him during a break and tell him that.
7 STINSON: Great. He'll probably appreciate that.
8 Cliff? And then we're going to move to the public comments
9 and ask you all to move up to the microphone, if you'd like
10 to offer any observations or questions.
11 HONNICKER: Okay. I made that comment. First of
12 all, you all don't jump on me. It wasn't me that said the
13 ALARA thing. It was the -- it was the director -- William
14 Hinman, director, Office of Environmental Review for EPA.
15 So, don't slay the messenger, okay. That's a general
16 request.
17 What he said was -- the following is a quote from
18 summary section Chapter 8, NUREG CR-1775, "In the case of
19 both decorative glassware and glaze ceramic products, some
20 exposures to the public to ionized and radiation will
21 result. In some instances, these exposures may be
22 significant. The promulgated philosophy is that all
23 exposure should be kept to levels, which are as low as
24 reasonably achievable and that no exposure should be
25 incurred without commensurate benefit, NCRP-75. Since the

1 use of uranium in these products result in little or no
2 benefit, in terms of the health or well being of the public,
3 and since suitable substitutes for uranium exist for this
4 application, it can be concluded that the exposures
5 incurred, as a result of product distribution and use, while
6 low in most cases, are unnecessary and unwarranted."
7 And he was making that in response to the -- on
8 page 415 of this earlier draft, that while most of the doses
9 listed for both individuals and populations are indeed
10 extremely low, there are individual cases which are not in
11 keeping with as low as reasonably achievable philosophy.
12 The worst case scenario shown are for copper bracelets, 300
13 millirem a year, and bone prostheses, 200 millirem. These
14 are relatively high end, themselves, no matter how limited
15 the area of exposure. So, that's what the EPA was saying.
16 That's not what I was saying, number one.
17 Number two, I just wanted to react real quickly to
18 what Mr. Guttman was saying, which is you have -- at least
19 earlier in this earlier draft -- in this draft, the NUREG
20 518, the draft environmental impact statement, at least you
21 can read it and understand, okay. At least you can read it
22 and read the calculations and read the assumptions, read the
23 scenarios, and understand it, and you have a basis for
24 making intelligent decision.
25 The material that you all sent me on this proposed

1 regulation that's going on today, it's incomprehensible.
2 It's incomprehensive for the average public to make a public
3 comment, because it is to poorly written, the science is so
4 poorly elucidated that how can anyone make a comment on is.
5 And I -- you know, I read it -- frankly, Dan, I read it and
6 I said, well, damn, I would write something like this, if I
7 didn't want the public to comment on it. I'd write
8 something so obscure, so fuzzy, so inarticulate, that the
9 public would either be bamboozled and say, gosh, it is --
10 it's so -- wow, this is rocket science; it's way up here and
11 I'm way down here and I don't get it, so I'm not going to
12 say anything.
13 Now, that's kind of a jaundiced kind of look at
14 it. But, then, I read Dan's thing and it said it was SAIC
15 that wrote this thing and SAIC that has a direct economic
16 impact or benefit from the passing of this regulation. See,
17 if it gets passed, they make millions of dollars off this
18 BNFL contract going on in Oak Ridge. So, hey, that would be
19 a great idea, write something so obscure that nobody could
20 -- a human -- a regular human being walking off the street,
21 a science teacher, I wouldn't take this to my kid's high
22 school science teacher, because I don't think they could get
23 it.
24 And one last thing, the head of the nuclear
25 program for the Nuclear Information Resource Services, Di

1 Derego, I asked her, I said, "Di, I've been out of analysis
2 of this kind of stuff for a couple of years" and you've gone
3 to milli-sieverts and baccerals and microbaccerals -- and,
4 by the way, you all showed on your presentation earlier
5 millirems, which is what I learned, rems, rankins, reps, and
6 that's what this earlier thing was in. This other thing
7 that's in sieverts and baccerals, it's over my head. But, I
8 asked her -- she has a chemistry degree -- I asked her, I
9 said, "could you sit down and with this proposed rule and do
10 the calculations? Could you do a critical dose response
11 from any particular thing?" And she said, no. And she said
12 that she was laid over in an airport with a senior NRC
13 scientist and they sat down and tried to sit down and do the
14 dose calculations on it and they couldn't do it. So, my
15 first response -- and that's why I'm not going to respond
16 today on anything in your proposed rule, because I don't get
17 it.
18 STINSON: Well, and hopefully, two things: the
19 next presentation in session two, Cliff does walk through
20 NUREG-1640, and I know Bob Meck is definitely willing and
21 interested in having this document addressed, be able to be
22 absorbed and address concerns that the public might raise.
23 So, I'm sure he'll be open to your suggestions for making it
24 more readable.
25 HONNICKER: Well, I am -- I mean, I'm probably the

1 only Southerner here. I'm the only -- I feel like I'm the
2 only --
3 STINSON: No, there's more Southerners here.
4 HONNICKER: Okay. Well, thank God. Well, let's
5 get together in a little bit.
6 [Laughter.]
7 HONNICKER: No offense, no offense to Northerners.
8 I mean, this is -- you can take the boy out of the country;
9 you can't take the country out of the boy.
10 I would like to, also, see if we can make the
11 issue a lot more fundamental to understand, rather than
12 getting lost in any minutia in the scientific analysis of
13 this proposed rulemaking. It's probably more important that
14 we go back to the basic fundamental issues, which is -- the
15 very easiest one to do is the economic cost benefit
16 analysis. And if the only -- there's 100 reasons -- at
17 least 100 reasons why this is not a good idea to put this
18 stuff back into the community. But, there's only two
19 reasons why it's good to recycle this stuff and those two
20 reasons are: it's economically beneficial to the
21 corporation that has the contract; and it's economically
22 beneficial to the DOE and to the private nuclear concerns to
23 get this stuff out the door.
24 So, if you want to get it down to the economic
25 benefit of getting this stuff out versus the economic loss

1 that the radioactive -- or the radioactive -- that the
2 regular recycling metal industry has or even the perception
3 -- you know, if you look at the stock market, you look at
4 how many hundreds and billions of dollars are lost in a
5 single moment on perception, that those are the things that
6 I think that we need really focus on and that will make this
7 meeting and this rulemaking issue much more realistic.
8 STINSON: Okay, good; thank you. Kristin and then
9 we're going to see if there are any comments from the
10 observers.
11 ERICKSON: I'd like to respond to Cliff. This is
12 Kristin Erickson, Michigan State University, and I want to
13 agree with you about the way that this is communicated. I
14 talked to people -- I train thousands of people a year and
15 they are most of them not radiation people. Many of them
16 haven't a clue; they don't know a rad from a rat. But, we
17 have to communicate to them in plain language.
18 I would like to explain to you that I know this
19 and I understand how difficult it is for the person on the
20 street to understand any of what we talk about. But, I want
21 to, also, defend it, in some justification, because if they
22 didn't publish it that way, I could guarantee that the NRC
23 would be throttled by those in the industry -- of our
24 industry, who would say, this wasn't right; you know,
25 where's .4392 grams of shielding, not .5; mia culpa. This

1 kind of things goes on.

2 HONNICKER: No, I think it could have read -- you
3 know, I've been reading science -- radiation-related
4 documents for 20 years now and I have a fairly good grasp of
5 these issues and I can tell you that this one was not
6 clearly written. It was not clearly written. And we can
7 sit down all day and go over the technical faults of it; but
8 before we go down over the minutia, let's talk about the big
9 picture.

10 STINSON: Good. Both points are well taken. You
11 certainly need to be technically accurate and you certainly
12 need to have it be understandable to the public.

13 Speaking of the public, anybody from the observer
14 area that would like to make a comment? Yes, ma'am, please
15 come forward to the microphone. Anybody else plan to make a
16 comment? Sir, you could step forward, as soon as she is
17 done. Go ahead. Your name and affiliation again.

18 BAINUM: My name is Sydney Bainum. I'm part of
19 the National Coalition of Organized Women. I'm, also, part
20 of NEIS, Nuclear Energy Information Service here in Chicago,
21 Dave Craft's group.

22 STINSON: If you could speak directly into the
23 microphone.

24 BAINUM: I would like to say that I am just
25 completely in a state of shock that the idea of releasing

1 any more radiation into this already over-radioactive
2 pollution; just appalls me that you could even consider
3 having a radioactive frying pan or a radioactive metal
4 surrounding a window.
5 Now, on top of all the radiation that's come from
6 the bombs, which are still pulling around stransium 90, from
7 all the releases of the 400 nuclear power plants, from all
8 the waste, from all the dumping -- and not only that,
9 British Nuclear Fuels, one of the most polluted corrupt
10 nuclear industry companies, is in charge of doing this in
11 Tennessee. It already has a contract sanctioned by Gore to
12 take 100,000 tons -- yeah, 100,000 tons -- it's already been
13 done and it's been reprocessed, going to Albionics. There
14 are already radioactive pots and pans out there. The Navy
15 promised to take them, but the pots and pans made all the
16 instruments of the submarines go off the wall, so they said
17 no, we don't want these pots and pans. So, now, they're up
18 in West Best -- I think they're in West Best, Wisconsin,
19 because that's a pot and pan factory place, and they're
20 being sold now to consumers. Now, would you want to cook
21 soup in a radioactive frying pan? This is what's going to
22 happen.
23 How can you measure this radiation? There are hot
24 spots. It's never equal; we all know that. If you have a
25 rad alert and you take it in a room, over there, you'll find

1 radiation; over there, you might not find any. And that's
2 going to be the same thing wit these metals. You might have
3 five spoons that are okay, then one spoon with an ounce of
4 plutonium particle. You're not going to be able to measure
5 this stuff when it gets all mixed up into a potpourri.
6 Now, I would like to say what Carl Morgan has
7 said. You know the famous Dr. Carl Morgan, the father of
8 health physics, who just died last year, who was deeply
9 respected by everybody. He was the one that said, no, you
10 should not radiate children's feet. Remember when we all
11 used to get x-rays? Okay, he was one of those types, you
12 know, concerned about health and safety, not profits, okay;
13 not profits -- for polluting for profits.
14 That's what this is all about, it's to save money.
15 That's all it's about. Instead of spending so much per
16 cubic meter and shipping it out to Utah in a safe place with
17 no radiation -- zero release of radiation, you're going to
18 mix it all up, so our grandchildren -- I'm worried now. I'm
19 going out and buying pots and pans for my grandchildren,
20 because when they get married 20 years from now, there won't
21 be one pot out there that's clean. There will be nothing
22 out there that's clean, if you let this happen.
23 STINSON: If you can, ma'am, can you please keep
24 your voice down?
25 BAINUM: I'm sorry; I'm sorry.

1 STINSON: Stay calm with us. Thank you.

2 BAINUM: All right. Now, I want to just say what
3 Carl Morgan said. You all know that he is a Ph.D, he's a
4 professional, and he has been nuclear peer -- he's been peer
5 reviewed by all the scientists. Okay, this is from -- I
6 must say that the most -- the magazine that does anything on
7 nuclear issues is the Progressive Magazine. They're the
8 only gutsy magazine and they put this out last October.
9 It's an article called Nuclear Spoons.

10 "Carl Morgan, known as the father of health
11 physics, shutters at the idea of more and more radioactive
12 metal entering people's homes. He is particularly worried
13 about dental fillings. You certainly don't want people
14 going around with radioactive teeth, he says. Some of the
15 most dangerous radioactivity around the homes, says Morgan,
16 will be the metals people unintentionally ingest. Some of
17 these find their way directly into the human body,
18 especially copper forks -- in forks, he says -- cooper
19 knives and so forth. It doesn't help any cell in the human
20 body, if you send an alpha particle through it."

21 "Now, Richard Clapp, who is associated professor
22 of the Department of Environmental Health at the Boston
23 University Schools of Public Health says you may soon need
24 to fear household products you have most contact with. If
25 you're sitting on it or if it's part of your desk or in the

1 frame of your bed, where you have constant exposure and for
2 several hours, you will be in most danger. Clapp, who
3 published the study on the increase in Leukemia and thyroid
4 cancers associated with low-level radiation exposure among
5 people living near Massachusetts Nuclear Power Plant says
6 radioactive metal recycling will raise over all radiation
7 levels."
8 So, we're going to add all radiation levels. It's
9 going to affect everybody's health, right. It's going to be
10 out there.
11 STINSON: One minute, please.
12 BAINUM: Okay, fine. It says, "recycling will --
13 what is their right -- who is in the right mind would want
14 to do that," he asks. And then he says, "this is the legacy
15 of an industry gone mad."
16 Now, I just want to bring one last thing -- I'm
17 sorry I got a little excited. But, you know, I've been
18 doing this for 20 years and you feel like you're up a stone
19 wall, okay. This already has happened. This was
20 radioactive scrap in building materials found in Northern
21 Taiwan. Remember we had the earthquake there? Well, it's
22 the same town, Taipei -- yeah, Taipei, I can't pronounce it,
23 in Taiwan. They buy -- it's a very corrupt military
24 government and they did -- they released contaminated
25 materials in the '80s. So, those apartments are all

1 radioactive -- you know, the window frames, the cement, the
2 roads, everything. And this boy -- a boy's illness was the
3 direct result of his sitting next to a heavily radioactive
4 window cage at his kindergarten and this boy got Leukemia.
5 So, we're talking about inflicting more -- many, many more
6 health problems.
7 Thank you, very much, for letting me talk.
8 STINSON: Thank you. Sir, your name and
9 affiliation? You are limited to five minutes, if you don't
10 mind. We'll have other opportunities for input.
11 LOEB: Rob Loeb, First Energy. That was a hard
12 act to follow. But, I want to try to focus on the process.
13 And one thing I would like to comment on, with regards to
14 the process, is kind of an expansion on what the NEI
15 representative said, in the mixture of materials.
16 STINSON: Can you speak a little more directly
17 into the microphone?
18 LOEB: Okay. It seemed to me that the intent was
19 to try and decide what to do with all these materials that
20 are stored in various facilities. But, then, there's a
21 statement that the proposal will be comprehensive for
22 materials and equipment. And to me, that means everything:
23 the tools that we use everyday; the trucks that we drive in
24 and out of the radiologically controlled areas; the shipping
25 containers that are used to send for burial. And I found

1 that there -- I felt that there need to be some
2 clarification with regards to exactly what would be covered
3 by this rule. Because, when I look at the values, the
4 screening levels that are proposed, there just is no
5 technology in existence for releasing a bulldozer from a
6 radiologically controlled area to those kind of levels. So,
7 I'd really like clarification on that.
8 STINSON: Okay. Is that your question?
9 LOEB: Yes.
10 STINSON: Okay. Don or Trish? And this is a
11 subject of one of our discussions after sessions two, which
12 materials should be considered versus which one are already
13 definitely under consideration by NRC.
14 COOL: This is Don Cool with NRC. I think there's
15 two answers. The first, I hope we will get to, as part of
16 these discussions, in terms of whether or not there is
17 technology, how you would go about validating and verifying
18 whatever kinds of criteria might be put in place.
19 Your first question, which is what is the scope of
20 the rule or potential rule or guidance or whatever action
21 the Commission may further direct the staff to do, that is,
22 in fact, a question, which is open for discussion here.
23 Certainly, there is a view that if the Commission moves
24 forward, it would be nice to be as encompassing as possible.
25 Part of the issues, which we are laying on the table, is to

1 what extent that is reasonable; to what extent a single
2 approach will work across a variety of materials; or whether
3 there are different approaches, which ought to be used. And
4 so, I appreciate that statement and would, in fact, ask, as
5 we continue with this, that you come back and find --
6 provide some further reflection to us on that exact scope
7 question, as we proceed through this day.
8 LESNICK: Thank you, very much. Let's move on to
9 session two. If you look at you agenda and, also, some of
10 the background slides, as we proceed. As you know, where
11 we're heading later this afternoon and tomorrow is to spend
12 a great deal of time with this chart, to talk about
13 particular materials and to talk about different ways of
14 managing solid materials and the implications therein. But,
15 before we get to that point, we want to make sure we've got
16 some good solid discussion and grounding and background.
17 This morning in this first session, we spent time
18 on NRC's authority, why are they even considering a possible
19 rule, the time line they're looking at, and some of that
20 kind of background information. We'd like to proceed in
21 session two, to give you a little bit idea of what kinds of
22 studies the NRC is currently pursuing, has pursued, and what
23 it will be looking at in the future. This is going to cover
24 some about technical basis, about soil. It's going to,
25 also, address issues of environmental and health

1 implications, as well as cost.

2 Similar to the session one, we're going to have
3 some background presentations first and slides. You can
4 come along and look at your hard copy, if you can't see the
5 projected image. And then, we'll talk about this probably
6 technical basis first and then environment and health and
7 then cost issues. We have three presenters: Tony, Bob, and
8 Giorgio. Tony, you're going to start this off.

9 HUFFERT: Yes. Thank you, Mike. As Mike just
10 mentioned, the purpose of this session is to give you --

11 STINSON: Tony, mention your name.

12 HUFFERT: I'm Tony Huffert, NRC headquarters. The
13 purpose of this session is to give you an overview of the
14 technical work that the NRC has been doing over the past
15 several years and, also, to summarize the current and future
16 activities that we'll be working on under this clearance
17 initiative.

18 The past several years, the staff has focused on
19 developing a technical basis for estimating the radiological
20 dose that an individual may receive from the release of
21 certain solid materials of low levels of residual
22 radioactivity that is either on or in the volume of the
23 materials in the equipment. The staff limits its analysis
24 to only iron, copper, aluminum, and concrete, as these solid
25 materials were considered the most likely candidates for the

1 release for unrestricted use.

2 The results of these staff efforts were published

3 in a report in March of this year, which is NUREG-1640,

4 which has been discussed so far. Copies of this document

5 are available and the public comment period is still open

6 until the end of the year, so we welcome your comments for

7 that time. And certainly after the beginning of the year,

8 we'll consider your comments; but, we appreciate getting

9 them as soon as possible.

10 NUREG-1640 is limited in scope and is only one of

11 several analyses that are needed to support decision making.

12 Additional analyses are needed for us to do any

13 environmental impacts and the costs and benefits of

14 alternatives associated with solid material releases. The

15 staff is currently developing a more comprehensive inventory

16 of materials that could be potentially released from nuclear

17 power plants, as well as materials facilities. We are,

18 also, in the process of analyzing collective doses to

19 populations and the potential for radiological exposure to

20 multiple items that may be released.

21 Another consideration is the ability and the cost

22 to survey or measure low levels of residual radioactivity

23 that is on the surface or in the volume of material and

24 equipment that can potentially be released. Implementation

25 considerations such as this will be addressed in the draft

1 regulatory guide, if we decide to go forth with the
2 rulemaking.
3 One of the materials that was not included in
4 NUREG-1640 analysis is soil. As part of the technical basis
5 development for soil, the staff is currently completing a
6 literature search on the uses of recycled soil, which I will
7 discuss after Dr. Meck discusses NUREG-1640.
8 LESNICK: Tony, can you get that even closer?
9 We're having people point to their ears.
10 HUFFERT: Okay. For now, I'd like to turn the
11 session over to Dr. Meck, who is the project head in the
12 development of NUREG-1640, and will explain the technical
13 approach of that report. Bob?
14 MECK: Thank you, Tony, and good morning. I'm Bob
15 Meck and I am with the Nuclear Regulatory Commission, in the
16 Office of Nuclear Regulatory Research. I'd like you to
17 recognize that we note the positions that we've heard
18 already this morning and expect to hear more this afternoon
19 and we will certainly consider those positions.
20 But, for the moment, I'd like you to step back
21 from your positions and put yourself in the situation where
22 the staff is, and that is, if the Commission were to set a
23 standard for the release of solid materials into the general
24 commerce and equipment, what should be the approach to take
25 to ensure adequate protection of individuals and the

1 environment? How would you go about that? That's the
2 challenge that we took on with the development of NUREG-1640
3 and it's only the first piece of the development of tools to
4 help the Commission make such decisions.
5 NUREG-1640 has two volumes and it's out on the
6 table across the hall outside this room. And just so that I
7 know who my audience is, how many people have a copy of
8 this?
9 [Show of hands.]
10 MECK: Lots of people have. How many people have
11 tried to read it?
12 [Show of hands.]
13 MECK: All right. And how many people feel pretty
14 familiar with it?
15 [Show of hands.]
16 MECK: Okay. People have tried to read it and
17 that's where it ended. I hope that I can give you some --
18 and I'm going to be very fast, so my colleagues, who are
19 familiar with this, don't fret. I'll go through it. But
20 what I can tell you is that I will make myself available for
21 one-on-one or however many on one, over in the corner on
22 breaks or at lunch time and so on, if you want some more
23 details; I'd be happy to go over that with you. But, I'll
24 give you the general approach of what this tool is about.
25 Now, I want to emphasize that this is not a

1 regulation, but rather it's a method to convert a dose, and
2 it could be any dose that the Commission might decide on, to
3 an individual to the amount of radioactivity that would be
4 associated with that dose. But, that still doesn't get to
5 the initial question that is posed to the Commission: how
6 -- what approach would you use to ensure that there would be
7 adequate protection of the individuals?
8 Well, the approach is that if we look at all the
9 kinds of things that can reasonably be expected to happen to
10 such materials, if they were released, or equipment, if it
11 was released, with associated radioactivity, and we analyzed
12 those situations and found which individuals were then
13 likely to get the highest dose, and if we protected those
14 individuals to a set level, then the other situations that
15 we would look at would be -- have even less dose. And so by
16 protecting the critical group, that is those individuals
17 most likely to get the highest dose, we're, also, protecting
18 other individuals in the population.
19 That's what this document basically does, it
20 provides a conversion factor to go from a dose to the
21 implementation, where people actually have to measure this
22 and say, well, how much on -- how much radioactivity on a
23 particular gram of scrap or a particular square centimeter
24 or scrap would be permitted and still keep those to the
25 individual less than that amount.

1 How did we actually go about it? What does this
2 document actually do and why does it take two volumes and
3 why is it so thick? At the outset, we don't know who the
4 critical group is. And so what we had to do is to analyze
5 for the four materials that were mentioned -- steel,
6 aluminum, concrete, and copper -- the reasonable scenarios
7 or outcomes that would happen. And the total number of
8 those scenarios is quite complex, reflecting American
9 society, and there were 79 of them that we analyzed. And
10 the dose differs for each radio nuclide that we have,
11 because each radio nuclide has its own unique characteristic
12 of radiation that it emits, and so we had to go through all
13 of those. And there were 85 of them that we could
14 reasonably expect to be released.
15 And so -- then, in addition to that, there's
16 variability. How can we say that in these scenarios, we
17 have -- we know exactly what people are going to do with
18 this material and we can calculate it precisely? The answer
19 is, of course, we don't know exactly. There's variability.
20 The surface to mass ratio, some pieces of scrap are thick;
21 others are thin. It makes a difference of how much
22 radioactivity could be associated with that piece of scrap.
23 And so, we used a probability approach. We take into
24 account the range of virtually all the parameters that go
25 into these scenarios. How people behave -- a truck driver

1 may drive a hollow load two hours or six hours a day, and we
2 take all of that into account, in a probablistic way, and we
3 sample that.
4 And so to get these conversion factors from
5 concentration to dose or dose to concentration, what we
6 ended up with was some distributions. And what's reported
7 in NUREG-1640 is the mean and the uncertainty associated
8 with how well we know those means for the situations. And
9 from that, basically, what we got, if we say this is the
10 number of times that we got a particular value for the
11 conversion factor and we look at a particular scenario for a
12 particular radio nuclide, it turns out, for example for
13 Cobalt 60 in steel, that the scenario that gave the highest
14 mean dose was for the person who transports the scrap.
15 Okay, so this is a truck driver, right.
16 The other scenarios that we looked at, for example
17 a small object worn next to the body, like a belt buckle, or
18 a person who, in turn, cuts the scrap, or somebody in the
19 slag pile after the metal is melted, then those conversion
20 factors came out -- if this is actually zero down here, as
21 it turns out for this situation, all of these other
22 scenarios were far, far below. And so going back to the
23 philosophy on how do you ensure protection at a certain
24 dose, if you protect the truck driver, then all of the other
25 scenarios would indicate that the other groups associated

1 with the release of that radio nuclide would be protected
2 even more. So, that's basically what NUREG-1640 does.
3 LESNICK: Thank you, Bob.
4 MECK: I can -- let me just add one more thing.
5 There's ongoing work. This is the protection of the
6 individual. There is, also, the question, in terms of
7 rulemaking, of what's the overall societal effect, and
8 that's what we look at when we accumulate doses for --
9 across the whole population. That work is ongoing and we'll
10 report on that when it's done. Thank you.
11 LESNICK: Let's keep going with some of the other
12 background studies, then we'll come back and we'll have
13 discussion for the rest of the morning and the early part of
14 the afternoon about this. Tony?
15 HUFFERT: Sure. Thank you, Bob; thank you, Mike.
16 As Bob pointed out, soil was not one of the materials that
17 were included in the NUREG-1640 analysis. Early this year,
18 the NRC staff began working on the technical basis of soils
19 clearance, because it was identified as an additional solid
20 material that may need to be disposed of. Specifically,
21 we're looking at the recycling or the reuse of soils that
22 could be released for unrestricted use.
23 The goal of this effort is to perform a dose
24 assessment of potentially recycled soil, similar to the dose
25 assessment methodology that Bob just pointed out in

1 NUREG-1640. And as part of this effort, the staff is
2 working with the National Agricultural Library of the U.S.
3 Department of Agriculture, Agricultural Research Service, to
4 conduct a comprehensive literature search of recycled soil
5 use in the United States. The National Agricultural Library
6 was chosen, because they possess the world's largest
7 collection of literature, data bases, and information
8 sources on agriculture and have developed and maintained the
9 preeminent agricultural literature search system, called
10 Avercula. And the objective of this effort is to identify
11 and to retrieve citable references for identifying and
12 characterizing recycled soil usage scenarios and for the
13 parameter values for conducting dose assessments of the
14 predominant scenarios, which, in turn, will be used to
15 identify the critical group and the potential doses. The
16 comprehensive literature search was completed last month and
17 we're currently working to develop a condensed listing of
18 the relevant literature and supplemental information sources
19 for retrieval and review.
20 Following our literature review, the NRC staff
21 will identify and characterize recycled soil usage scenarios
22 and estimate the parameters for the dose assessments. We
23 are requesting public input to identify citable literature
24 and data bases pertaining to the recycled soil use that is
25 relevant to clearance. We are planning to publish a draft

1 report on this subject in the next month or two and to hold
2 a public workshop at NRC headquarters in March, to present
3 not only the findings, but to obtain the public input on
4 soil uses.
5 At this point, I'd like to turn over the session
6 to Giorgio, who will discuss the health, environmental, and
7 economic impacts that should be considered for decision
8 making. Giorgio?
9 GIORGIO: As many of you are experiencing, I'm
10 having a little bit of trouble with my name today. Let's
11 see if I can do this. Good morning, I'm Giorgio of the
12 Special Project Section in the Decommissioning Branch, in
13 the Division of Waste Management at the NRC. That's the
14 long name. I'm, also, part of the working group that was
15 mentioned earlier.
16 In this part of session two, I will be following
17 the discussion on radiological evaluation of clearance
18 pertaining to the potential health and environmental impacts
19 associated with the various alternatives being considered
20 for clearance. For those of you following the issues paper,
21 this session relates to issue two, item (a).
22 What are the potential health and environmental
23 impacts that should be considered? First and foremost, the
24 basis for NRC's consideration of any action related to the
25 release of control of solid radioactive material is

1 protection of the public health, safety, and the
2 environment. NRC will evaluate impacts of all the
3 alternatives being considered. For each alternative, one of
4 the attributes to be considered is the potential
5 radiological impact, and the first step is to assess the
6 potential dose to an individual. For each alternative, we
7 consider the potential exposure for individual and multiple
8 sources; so not just one thing: eyeglasses from recycled
9 metals, steel girders in housing and office construction,
10 etc.
11 We use a two-step process in picturing how this
12 exposure can occur. First, we examine how the material is
13 released and comes into contact with people. This is
14 scenario analysis. And then we look at the ways in which
15 the biological impact is delivered by inhaling, eating,
16 etc., and this is called the pathway analysis. One can look
17 at this whole process as part of the material flow, from the
18 licensed activity to the generally affected environment.
19 Much of this is explained in NUREG-1640, which was just
20 discussed.
21 In order to better reflect the impacts of the
22 various alternatives, we, also, perform a collective
23 radiation dose estimate of population groups. Different
24 scenarios may associate with different indicator
25 individuals. The collective dose allows a more common

1 denominator for comparison. In effect, we can better
2 account for different materials having different pathways
3 and resulting in different individual doses to different
4 people. Some age groups may be more radio sensitive than
5 others to particular materials. So, in order to smooth out,
6 and we reflect the impact of these materials and the flow,
7 we use a collective dose.
8 Next slide. Other attributes for evaluating
9 impacts to the environment, also, include those to biota,
10 that means other animals, and how land use is affected.
11 This is required by the National Environmental Policy Act.
12 We would include assessing impacts to public use areas,
13 swing sets and playgrounds, wetlands, preserved habitats,
14 endangered species that may be more radio sensitive, etc.
15 Another attribute to consider is the impact of mining and
16 processing of new metals to replace recyclable metals that
17 are instead disposed of in a low level waste site. This
18 involves the incremental contribution to pollution, increase
19 potential for occupational injuries. So, in effect,
20 although it may seem that it wouldn't hurt anybody to take
21 this material and put it in a low level waste facility, the
22 fact that you may have to indulge in greater industrial
23 effort to replace it may have its negative side. So, in
24 effect, we have to consider all of this when we look at the
25 potential effects.

1 We continue with this listing of attributes for
2 health and environmental impacts and point out that the
3 attributes are not cut and dried, because trying to minimize
4 one impact could be offset by the increased potential of
5 another. Some of these impacts may be competing. The value
6 of sending more recyclable material again to a low level
7 waste disposal site may be offset by the increased
8 pollution. There are issues of concern in trying to balance
9 these choices.
10 One of the attributes that is very difficult to
11 quantify, but places a strong role in decision making, is
12 the concept of environmental justice. We don't want to have
13 one sector of society bearing a disproportionate amount of
14 the burden in the allocation of impact. By this, we mean
15 children, who would be more likely to have dental braces
16 that may be made from recyclable material, or low income
17 housing being the recipient of recycled material more so
18 than other houses -- housing. Some of this carries into the
19 reluctance to postpone to the future the difficult decisions
20 for ultimate disposition -- bridge trusses, reentering
21 unrestricted commerce when future demolition terminates and
22 authorized restricted use, for instance.
23 There are, also, impacts we have in common with
24 non-radiologically driven decisions: occupational injury,
25 transportation, noise, road construction; so, in effect, the

1 radiation label doesn't make this aspect of consideration
2 unique. Part of what we're looking for today are other
3 impacts that we should consider and we encourage any
4 comments from the public.
5 The other side of the equation that we need to
6 balance for decision making relates to the potential
7 economic and cost benefit considerations associated with
8 various alternatives. For those again who are looking at
9 the issues paper, this is issue two, item (b).
10 Why do we consider economics and cost benefit?
11 Basically, the federal agencies must consider cost benefit
12 in their evaluations of alternatives for major rules.
13 Executive Order 12291, which was mentioned earlier, directs
14 all executive agencies to prepare a regulatory impacts
15 analysis for all major regulatory actions. It should be
16 noted that this executive order directs that action should
17 not be undertaken, unless they result in a positive net
18 value to society.
19 NRC guidance for conducting this cost benefit
20 analysis is documented in a document called NUREG-BR-0058,
21 Regulatory Analysis Guidelines of the NRC. This document
22 goes into some detail addressing the attributes and
23 preparing environmental analyses. Basically, this provides
24 a tool to help balance health, safety, environmental impacts
25 with cost required to achieve or preserve them.

1 We next address some of the economic impacts. I
2 should point out that these items are an aid to help focus
3 our discussion today. They are not meant to be so
4 exhaustive that we wouldn't consider anything else; so, by
5 no means is this all we look at.
6 Radiological surveys will play a role in verifying
7 that permissible levels have been met. The costs include
8 instrumentation, labor, training, analysis of results,
9 survey time. The lower the dose and concentration number,
10 the higher cost associated with the necessary accuracy for
11 the readings. Many of the alternatives will have an
12 economic impact on certain commercial sectors. Scrap
13 dealers and other industries would need to tailor their
14 operations accordingly. If the total prohibition were to
15 take -- were to the ultimate regulatory strategy, then scrap
16 dealers and melters would need to strongly invest in
17 detection technology to preserve their radiological clean
18 bill of health.
19 The cost impact may affect the manufacturing
20 process, also. This is most keenly observed in the
21 potential to responding to false contamination alarms or for
22 rejection of materials that melt through scrap and scrap
23 yards. This would entail costs for having the material sent
24 back. In order to minimize liability, scrap dealers,
25 melting operations, and other types of operators and

1 preprocessors will need to weigh the cost associated with
2 more precise and reliable monitoring for both incoming and
3 outgoing portal monitor stations. Again, the metal
4 replacement reduction costs need to be addressed in this
5 analysis.
6 We continue with a list of the potential cost
7 impacts. Depending on the alternative, this would impact
8 the cost of disposal. The tradeoff is whether we send these
9 materials to a public landfill or to a low level waste
10 disposal facility or neither; in effect, recycle it. There
11 are, also, costs for other industries, such as producers of
12 film and certain electronic products, which might have to
13 retool to avoid sensitivity problems.
14 Another concern is the potential for buildup of
15 radioactivity in commerce over time. It's not -- it isn't
16 clear to us, at this point, how we should estimate this.
17 This is part of our study and research effort to try to get
18 a handle on this kind of problem. The socioeconomic impacts
19 have to be weighed, as well, as in any environmental impact
20 statement analysis: jobs lost, created, quality of life in
21 communities, increased noise, traffic accidents, etc. There
22 are the costs that should be considered. We expect to hear
23 suggestions today what they might be.
24 Okay. What is involved in a cost benefit
25 analysis. Now, this is a fairly simple slide. For each

1 alternative, we evaluate potential health, safety, and
2 environmental impacts against costs required to achieve or
3 preserve them; what benefits come from each alternative;
4 what detriments result from each alternative. Effectively,
5 we need to select an alternative, which yields that net
6 positive value to society. If this indicates a rulemaking,
7 what should the rule be: concentration limits, dose limits,
8 etc.? If not, do we go with clarifying or improving
9 existing guidance and continue with the case-by-case
10 approach?
11 This, in effect, ends the formal part of the
12 presentations in session two. I'll turn over the microphone
13 back to the facilitators to begin the discussions of the
14 subjects covered in this session.
15 LESNICK: Thank you, very much. Thank you,
16 gentlemen, for those overview presentations.
17 As I said at the beginning of this session, the
18 intent here to provide some background, so you have a sense
19 of what's been studied, what's being studied, what's
20 intended to be looked at. At this stage, it would be very
21 helpful to get some feedback from you all about what is
22 being looked at, what should be looked at. As the NRC goes
23 forward to examine possible alternatives, we're going to
24 look at different implications and study different aspects
25 of this. It would be very helpful to hear from you about,

1 I've heard you said in your environmental study, you're
2 looking at these four things, have you thought about this
3 fifth kind of category, or make sure you look at this
4 aspect, or in the cost analysis. So, that's what we'd like
5 to do for the remainder of this session until lunch and then
6 we'll come back again after lunch, as well.
7 Given that we've had several presentations in a
8 row, may I suggest we take this in maybe three chunks:
9 first, any comments, suggestions about the NUREG-1640 and
10 the soil, first; and second, let's talk about environmental
11 and health; and then thirdly, let's move on to economic and
12 cost and see if that will work. So, let's open it up first
13 for your comments about NUREG-1640 and about, also, the soil
14 analysis.
15 Dan?
16 GUTTMAN: Yeah, thank you.
17 LESNICK: And don't forget to introduce yourself,
18 please, and get close to the microphone.
19 GUTTMAN: Dan Guttman from PEIS. Mr. Meck did a
20 terrific job of explaining how complex this is and why we
21 all are pleased that multimillion dollar contracts are
22 available. And I don't even think that Cliff could have
23 done a complex job like that with that money.
24 But, at the same point, the complexity highlights
25 the essential role of all the judgmental decisions. So, one

1 can sit here and not require a great bit of imagination to
2 know that someone like Mr. Honnicker or the gentlewoman, who
3 spoke out there so eloquently, might have a different view
4 of the judgment factors than someone that had a multimillion
5 dollar interest in getting this as a done deal rule, like
6 SAIC does.
7 And so what would want to look at before one
8 comments thoughtfully on this is what was the scope of work
9 that the NUREG-1640 contract had. And as I think we now
10 know, that's a secret. And I don't know whether it's --
11 that you're withholding information intentionally or
12 somebody inadvertently destroyed the document or what it is,
13 but that's not available publicly. So, that's a secret, the
14 scope of work for the 1640. It's very interesting that we
15 don't have that on the public record.
16 Now, we're told -- we keep on hearing from the
17 staff that this is what staff is doing. But, in fact, the
18 contract -- the 1992 SAIC contract makes plain, it isn't
19 staff. Staff is not the real party in interest here. The
20 terms of the 1992 contract, as we quote in our paper on the
21 SAIC, say that it is SAIC that will submit draft issues,
22 papers, submit resolution of comments, and revise draft
23 issues paper, submit final issues paper, submit draft
24 regulatory options paper, submit final regulatory options
25 paper. So, if we read what is in the public reading room

1 and we assume that SAIC was doing what it was told and got
2 paid for it, and there is no false claim here that this was
3 done, then it looks like that it's this contractor that is
4 doing that, which may have some interest.
5 And the question I have, then, is not so much what
6 your general counsel will decide, as to whether or not this
7 contractor should be slapped on the wrist or perhaps
8 debarred, but what possible reason can you give the public
9 here for withholding any scrap of paper that SAIC produced
10 under this contract, including, to start with, the scope of
11 work, all the options papers and the regulatory papers,
12 which make the public perhaps believe that it's staff, not
13 an interested party that is doing this, and everything else.
14 Until you give us -- is there any reason that you're
15 withholding -- can you tell us now why you won't immediately
16 release this, other than you've lost it, which we can
17 understand; or you can't get it from the contractor, which
18 we know it happens, because they take it and they say it's
19 not the government's, it's not --
20 LESNICK: Dan, let's allow folks to respond.
21 GUTTMAN: Well, the question is: where is all the
22 documentation? Why haven't you put in the public reading
23 room the basic contract that is supposed to, by your own
24 regulations, be there? Where is the options papers they've
25 drafted? Why can't you make those public?

1 LESNICK: Don, did you want to comment?

2 COOL: Well, you've made a lot of statements

3 there. Let me just answer is quickly, two items. One, I

4 have asked the folks in our Office of Research, who had that

5 contract, to assure that those documents are in the public

6 document room. Statements of work are nominally made public

7 and I quite frankly do not know why that isn't already

8 available to you.

9 LESNICK: Bob, do you have anything you want to

10 add?

11 MECK: Yeah, just briefly. The short answer to

12 your question is that the scope of work is to provide

13 technical assistance to the staff. The staff has to take

14 responsibility and we're well aware that we can't have

15 contractors doing our work. And so the second part of the

16 answer is that the entire files for that contract have been

17 turned over to OGC and I think your requests have already

18 been forwarded to them. And I've been out of the office; I

19 don't personally know what the hold up is. But, the files

20 are complete and they should be -- you know, able to get to

21 them, too.

22 GUTTMAN: Well, I'm entitled to respond. This is

23 not --

24 LESNICK: Briefly, Dan.

25 GUTTMAN: This is not an ethical, legal matter.

1 This is a public participation. You've got people here. I
2 understand that they did the draft and the final regulatory
3 options paper. That's what it says in the signed contract.
4 That's what they get paid for. We're entitled, as
5 taxpayers, to see it. It's not a matter of turning it over
6 to OGC. You are dealing with us here. They may or may not,
7 OGC, want to fine or sanction SAIC. But, we, in this
8 process, are entitled to see that, irregardless of any
9 conflict issue. And what I want to know has that not been
10 made public, the options papers they've drafted and the
11 regulatory issues papers, which were done by a company that
12 apparently has --
13 LESNICK: Let's get another comment from Don and
14 then I'm going to move on and take other cards.
15 COOL: Mr. Guttman, as I indicated a minute ago, I
16 have asked to make sure that that is made public. However,
17 the staff is ultimately responsible for preparing its
18 recommendations to the Commission. It uses contractors to
19 provide input to those documents. That is the document you
20 wish to see. We will provide it for you. You may agree or
21 not agree with the issues in the paper; however, those are
22 the issues that are on the table and the Commission is
23 looking for the considered input on how to proceed with
24 those issues.
25 GUTTMAN: Is that the same, Mr. Cool, that we have

1 now gotten the statement, you will provide us with materials
2 provided by SAIC? I understand that's what you said, is
3 that correct, you will provide us with the regulatory
4 options and the issues paper?
5 LESNICK: Dan, I need to move on. I think you've
6 got the answer --
7 GUTTMAN: No, I want to know.
8 LESNICK: -- twice.
9 GUTTMAN: What's the answer to the question? Will
10 you make all of these things public that SAIC provided, yes
11 or no?
12 COOL: Yes.
13 GUTTMAN: Thank you.
14 LESNICK: Can we move on. Paul Genoa, please, and
15 then we'll go to Mike Mattia, and then to Cliff.
16 GENOA: Paul Genoa with NAI. And I wanted to add
17 --
18 LESNICK: Can you get closer to the microphone,
19 please?
20 GENOA: I wanted to add some perspective from the
21 international community. As was stated earlier, the IAEA,
22 as well as the European Union and other individual
23 countries, are all looking at the same issue: what is an
24 appropriate criteria to determine when materials from
25 nuclear facilities can be released and when do they need to

1 be controlled. And each country has their radiation experts
2 and their economists and others developing similar models
3 and regulatory technical basis documents; all have used the
4 same types of an approach, as in 1640. They all are very
5 smart people, looking at complex problems, have come up with
6 very credible results. But, what is understood in
7 international debate on this, in international symposium,
8 that when you get down to extremely low levels and you go
9 below those levels, that the uncertainty among these
10 deliberations increases and that it is not unexpected, when
11 you get down to levels that are a small fraction of natural
12 background, that the different assumptions put into the
13 models will change the results significantly, perhaps even
14 an order of magnitude.
15 And so when you see criteria such as NUREG-1640
16 for a certain isotope under a certain condition and you look
17 at what the Germans do or you look at what the French do or
18 you look at what other countries do, you will see that there
19 are some changes in the actual activity, but that those
20 changes are well within the range of uncertainty in those
21 models. The bottom line is that it may not be so important
22 as to the exact concentration number you select, but it may
23 be more important that within the range of numbers found by
24 international experts in studying this, that you select a
25 reasonable implementable number across the board, so that

1 there is consistency with the international community. And
2 I just wanted to offer that perspective.
3 LESNICK: Thank you. Let's go to Mike Mattia.
4 Mike, about 1640, technical basis, soil.
5 MATTIA: There's a section in 1640, specifically
6 2-5 in the summary, a paragraph that is a four-part
7 paragraph and elicits four questions. The key sentence is
8 residual radioactivity in consumer products rarely yields
9 any critical groups, such as were explained, and the four
10 reasons why, according to this paragraph, that consumer
11 products rarely yield critical groups, one is because of
12 radioactive decay over time. And the question arises, when
13 we're talking about isotopes that have a thousand plus years
14 of decay, is this a valid argument?
15 The second statement is that generally mixing,
16 taking small quantities of release material and mixing it
17 with large quantities of uncontaminated material, will
18 dilute what comes out of the mix. And I guess my question
19 is, I haven't heard of studies that have validated this,
20 except for computer models.
21 The third is the issue of partitioning, since it's
22 assumed that many of the isotopes will go to the slag or the
23 to the flue dust, then, we're not talking about consumer
24 product exposure. My question is, in today's scientific
25 processing, slag and flue dust that comes from mill

1 generally isn't considered an end product. There is still
2 some refining that is done to remove the material or the
3 metals. Some of this material, such as slag, can be used in
4 road beds and for other processes. But, then, there's,
5 also, the issue of disposal, where if the slag or the flue
6 dust does have a significant concentration, there's a
7 disposal problem. So, now, we have an exposure potential to
8 individuals involved in the handling and the disposal.
9 And the final of the four I have to read. It
10 says, "the relatively small size of consumer products limits
11 the amount of radioactivity to which any individual could be
12 exposed in these scenarios." Now, I absolutely do not
13 understand the validation or the justification for that
14 statement.
15 LESNICK: Bob, did you get all four?
16 MECK: I think so. The answers to your questions
17 reflect the complexity of the issues. Certainly for long
18 lived radio nuclides, those with long half lives, decay is
19 not an issue here. But --
20 STINSON: Bob, why don't you just stick to the
21 question --
22 MECK: Okay. First of all, my name is Bob Meck --
23 the transcriber is over there looking at me. The first
24 question was, what about decay and why isn't -- or how does
25 decay factor in to low doses or low conversion factors for

1 consumer products, and that statement applies only to those
2 radio nuclides that do have short half lives. For those
3 that have long half lives, it -- that wasn't a factor.
4 The second question, Mike -- the second statement?
5 LESNICK: Mixing.
6 MECK: Mixing. The approach that we took was to
7 model U.S. industry, as we understand it and as it is in
8 existence today. And this is reflects somewhat to Dan
9 Guttman's previous comment, and that is what -- when we had
10 to make judgments about the processes that were going on and
11 of general commerce, we went to industry and if it took a
12 personal communication, those are cited in the document.
13 So, that's where that information came from. And so, our
14 understanding was that -- of the general practice, if
15 something goes to a scrap yard, it's likely to get mixed,
16 depending upon the steel manufacturer's specifications for
17 that scrap yard and particular load. And so, we included
18 mixing with scrap, say, from other sources, and so, that, in
19 itself, would tend to dilute the radio -- the concentration
20 of radioactivity.
21 The next are -- had to do with --
22 LESNICK: Partitioning, slags --
23 MECK: -- partitioning, thank you. The
24 partitioning is a physical chemical reaction. We follow the
25 physics and chemistry of the form of the radioactivity and

1 where would it likely go. And, indeed, we did consider the
2 dust, the slag, and so on, for byproducts that were, also,
3 used, and followed scenarios about what were the likely uses
4 of those byproducts, the dust, and did follow those on out
5 to, say, road bed worker or a landfill disposal -- not a
6 person. And so, we tried to chase those byproducts down, as
7 well.
8 And the fourth one --
9 LESNICK: The fourth one, you'll have to repeat.
10 MECK: -- was -- oh, the size. The consumer
11 products, in general, are not large massive objects, like a
12 huge industrial lathe or a battleship or something like
13 that. And if the criterion for release is limiting the
14 concentration in the first place, then the amount of
15 radioactivity in any one item is -- has a total limit. And
16 if you have, you know, something that's really huge, tons --
17 you know, tons and tons, then the total radioactivity in
18 that is going to be greater, than if it were in an household
19 appliance, for example. Okay?
20 LESNICK: Thank you, very much. Cliff, I want to
21 get to you, but I -- since the microphone is already down at
22 the end, Craig, did you put your card down or do you still
23 have a comment?
24 CONKLIN: I put it down for now.
25 LESNICK: Okay; great. Let's come over to Cliff

1 and then we'll come over to Jazz, on this side of the room.
2 HONNICKER: Okay. You know, I really -- there are
3 so many things going on inside me right now. There's such a
4 richness of issues right here, that it's very hard to
5 untangle them all and know exactly where to begin. But, I
6 would assume that a scientist looking at all of this would
7 say that we have to go back to the very first variables, if
8 you want, the variables that go into the equation. And if
9 the variables that go into the equation are incomplete or
10 wrong, then you can sit here all day long talking about
11 models and theories and this number and that number -- but
12 if the basic variables that went into the equation are
13 wrong, then the whole thing is moot. It doesn't mean
14 anything.
15 Now, I have talked to Mr. Guttman maybe twice this
16 year for about a total of five minutes. I knew that he was
17 involved in these issues, but, I -- basically, it was, you
18 know, maybe two minutes I've talked to him. I've not really
19 talked to him at all about this whole process that's going
20 on right now. But, it's interesting, and I've got to say
21 that I respect this man deeply. He was the executive
22 director, chosen by the President of the United States, to
23 head a presidential advisory committee on human radiation
24 experiments a few years ago, and I deeply respect both his
25 intellect and his tenacity.

1 GUTTMAN: See, that's what I told Cliff, in the
2 two minutes, make sure he mentioned that.
3 HONNICKER: No; no, you didn't. I've been invited
4 to the San Francisco meeting, the Atlanta meeting, and this
5 meeting. I'm incredibly busy on trying to help the affected
6 workers, who have been poisoned in the ongoing process of
7 what's going on right now, and so this is the only meeting
8 that I could come to. It's very important that I try to get
9 back to the fundamental equation and the fundamental
10 equation is that you have to have all the information at the
11 front end, in order to make a reasoned real scientific
12 judgment of whether or not that NUREG-1600 is a valid
13 document.
14 Now, SAIC, there's a big building about a quarter
15 mile from the DOE federal building in Oak Ridge and about a
16 five-minute drive to K-25. And my reading of NUREG-1640, I
17 said, you know, there's all these assumptions in here, but I
18 don't think that the gentleman who wrote this took the
19 five-minute drive down to K-25, to look at the real working
20 conditions that these folks are exposed to. I don't think
21 that they went down and they looked at the nuclear powder
22 that we're talking about and made any kind of judgment of
23 the classified alloys that are in that material, of the
24 classified chemicals that are in that material, of the radio
25 nuclides that are in that material, and looked at the

1 synergistic affects. The synergistic affects of that
2 material is going to put it into a whole new ballpark. I
3 don't think the people at SAIC went down there and looked at
4 what the real working conditions are that the people have to
5 deal with.
6 Now, our working with nuclear whistle blowers in
7 those facilities, where a worker comes across and says, hey,
8 they're not following the EPA regs, or they're not following
9 DOE regs and handling materials safely, and that worker is
10 taken out of his job, stripped of his job, taken and put in
11 a toxic waste room and made to sit there for six months in a
12 toxic waste room, at a desk, no job, no telephone, no job
13 duties, and as punishment for bucking the system, when the
14 system goes this way and he says we're not complying with
15 the regs. You know, that sounds kind of crazy, but that was
16 actually the first environmental whistle blower suit that we
17 filed.
18 LESNICK: Cliff, let me make a suggestion.
19 HONNICKER: Now, let me finish; let me -- please,
20 please, let me finish.
21 LESNICK: I'm going to let you finish. But, I
22 urge you to think about, given your experience and what
23 you're doing on the ground, and given that they're taking
24 comments on this --
25 HONNICKER: I would like to --

1 LESNICK: -- you are able to pursue that.

2 HONNICKER: -- make a -- I came ready to make a
3 presentation. At some point later in the day, I'd like to
4 do that. But, that was the first environmental whistle
5 blower lawsuit that was ever filed in Oak Ridge, the
6 scenario I just told you, and DOE fought it tooth and nail
7 and it went for years and I can tell you all about it. But,
8 that's the context. That's the real political,
9 sociological, scientific context that we're working in.

10 Now, Mr. Guttman has asked you, I want the very
11 beginning of the equation, which is: what is it -- who is
12 doing this and what are their motivations for doing the
13 study in the particular way that they've done it and what
14 would be the pressures mitigating against those people from
15 bringing in all of the variables, okay? I had that same
16 question and I wrote you guys on October 7th, to Chip
17 Cameron. I wrote him and I said, I don't --

18 LESNICK: Cliff, I need you to press on with the
19 points on the table.

20 HONNICKER: Okay.

21 LESNICK: There are other folks that want to
22 speak.

23 HONNICKER: I wrote Chip Cameron on October 7th
24 and I said from my participation in this process, I need the
25 marching orders. I need to find out who wrote this report.

1 I need to find out what were the contracts that said why are
2 they writing this report; what are their marching orders
3 from the NRC, in order to make a report clear for the public
4 to understand. I would like those papers. And I said for
5 my participation, I have to have that. You guys have not
6 responded with one single piece of paper.
7 So, is this process that we're sitting here right
8 now, is this a legitimate process or is this a pro forma
9 process for which you guys march through your own regulatory
10 process? Do you really want the answer or are we just here
11 to fulfill your obligation to say that you've had your
12 public meetings; you've had your public comment; thank you,
13 let's move on?
14 LESNICK: Thanks, Cliff. Thanks for you comments.
15 Jas, we're going to move to you and to Susan.
16 DERGUN: Okay. This is Jas Dergun. I think my
17 comments are probably not in the same thread as Cliff, but
18 more in line with Paul Genoa's thread. I have three brief
19 comments on this; one for Bob Meck and Giorgio, both. I
20 have not so far seen ANSI standard mentioned. So, I'd like
21 to hear comments on that, because it's already out, ANSI and
22 13.12. As you know, Bill Kennedy made a very strong case
23 for it in the San Francisco meeting. And I'd like to say,
24 as 1640 is still a draft document, are you considering other
25 input into it? I'd like to see your thoughts on that. Are

1 you going to include something, which is from a pretty --
2 organization out there.
3 Number two, I think the comment is related to
4 something -- echoing what Paul Genoa said, that when you
5 talk about these type of levels, basic uncertainties in any
6 model, it doesn't matter what you use, whether it's res,
7 rad, DOD, or any other pathways analysis models, when you
8 talk about changing some of the critical parameters, you can
9 change these values quite substantially. So, that has to be
10 recognized and that has to be communicated, too. Then,
11 maybe, I guess one other things that we have difficulty in
12 reaching a rapport with the public, that we don't seem to
13 communicate that well; that when we're talking about those
14 type of levels, one really knows what they really mean.
15 The third comment is basically related to -- I've
16 heard you mention in the presentation, some of the European
17 and international criteria. They all have -- pretty well a
18 lot of the countries have come out and fixed some kind of
19 levels. I think we are still far removed from it. We are
20 shying away from it. 1640, for example, does that dose
21 conversion factor, but doesn't give you any real dose value,
22 which we should have as a target. The European Community
23 has already come out with 10 microsievert per year, which is
24 one millirem. But one thing, which I would, also, like to
25 elaborate on, that they do make a distinction between when

1 it comes to recycling; they make a distinction between
2 recycling in the nuclear field -- in the nuclear industry
3 and the general trade. So, that's maybe something to look
4 into.
5 And, also, I have a report here from a German
6 radiological commission, Commission on Radiological
7 Protection. The values they have given out, which are being
8 applied, and I've seen in the literature a couple of papers
9 already applying this to nuclear science, they have
10 distinguished, on the mass based standards levels, four
11 different scenarios: like unconditional values are
12 different from the clearance for disposal and they are
13 different, also, from clearance for metal recycling.
14 I'll give you an example. For example, Cobalt 60,
15 these are units now in bacarrels.
16 LESNICK: Briefly, please.
17 DERGUN: Yeah. Unconditional is .1 bacarrel per
18 gram, but for disposal it is four bacarrel per gram and it
19 is .6 for the metal recycling. You may need to look into
20 it, because, in some says, it makes sense, because for
21 disposal, obviously, you have an engineer facility or a
22 closed cap on it and the risk is going to be different.
23 LESNICK: Let me ask before anyone responds, Jas,
24 some of the issues I think you've raised, and correct me if
25 I'm wrong NRC staff, some of them, I think, might relate to

1 subsequent discussions about alternatives; for example, ANSI
2 and I think some of the international standards. There may
3 have been other components of your comments that do relate
4 to some of the technical basis of the NUREG and I guess I
5 would ask Bob or Don to -- if they care to comment on that,
6 if they saw that. Otherwise, some of that, Jas, I think
7 let's hold until we're getting into kind of preferred
8 alternatives, people's suggested alternatives.
9 Bob or Don, did you hear anything in there that
10 you want to comment on, specifically to 1640 and the
11 technical basis?
12 MECK: This is Bob Meck. I just have a brief
13 comment about the sensitive of parameters and the choices of
14 that. I failed to mention that we've been working with EPA
15 over the last five years and comparison is their view of
16 industry in the U.S., the same view that we have. And
17 we've, also, included DOE in these discussions. So, we've
18 made quite an effort to be careful about those and make sure
19 that they were representing what we believed to be
20 representing. I can add more to that one-on one.
21 LESNICK: Don, did you have anything you want to
22 add or I'll move on?
23 [No response.]
24 LESNICK: Okay. Let's take a few more comments
25 about NUREG and about soil and then we're going to take our

1 lunch break. And we're going to come back after lunch and
2 continue our conversation and move on to environmental
3 health and cost considerations. Susan?
4 LANDAHL: Susan Landahl, Commonwealth Edison.
5 Regarding the NUREG-1640, my first issue is that the pathway
6 analysis, as was pointed out, or the validity of the pathway
7 analysis is, of course, critical. And I understand the
8 approach. I approve the approach, as far as being very
9 conservative. I want to make sure we don't lose sight of
10 the fact that this approach does, also, mean that the vast
11 majority of the population is not in the critical group and
12 gets a dose of zero. So, the entire approach is very
13 conservative.
14 My other issue is just that, while I appreciate
15 that it's a reasonable approach, when I look at all the
16 data, my concern is that the end result could be something
17 that would be too complicated to practically implement, at
18 least in my business, and one of the reasons that we are
19 here today is the issue of inconsistency in the application
20 of what exists today for regulation. We spend a great deal
21 of time attempting to release material to prove that it has
22 no licensable material; and as a result, we're putting
23 material into the waste stream just because we can't prove
24 that it doesn't have any license material in it. So, I
25 would just offer that whatever rulemaking, if rulemaking

1 does result from this, it needs to be in a form that can be
2 simply and consistently applied and evaluated, you know, by
3 the licensees and by outside agencies, in a consistent
4 manner.
5 LESNICK: Thank you, Susan. Let's go to Tony,
6 Peter, and if we can do this, Alice, and then we'll take our
7 break for lunch. So, you can move with some vigor.
8 LaMASTRA: Tony LaMastra. I have detailed
9 comments that I'm going to submit on NUREG-1640, where it
10 looks at the facts that are presented and, also, some of the
11 assumptions. But, one of the things I'd like to make as a
12 general comment is that the authors do not always use
13 commonly used terminology and when that happens, it makes it
14 difficult for affected industries to really do a review of
15 the -- to determine what the impact is. So, I would
16 recommend that when you come out with your final document,
17 that the authors essentially be asked to look at what the
18 terminology that's used by the recycling industry, by the
19 metals industry is, and try to restrict their comments or to
20 basically use that terminology, so that we can do a better
21 evaluation of it.
22 GIORGIO: Could you give us just an example?
23 LaMASTRA: Yeah. They use terms like "refiners"
24 or a "refinery," and it's difficult to tell whether that
25 speaks of a single furnace or an entire plant. That's just

1 one right now that comes off the top of my head.

2 LESNICK: Let's move on. Bob, did you want to --

3 I'm sorry.

4 MECK: Yes. It would be very helpful in your

5 formal comments to include as many specific examples as you

6 can and we very much appreciate getting that kind of

7 comment.

8 LaMASTRA: Basically, I'll break it down by

9 section and give you the section reference.

10 LESNICK: Obviously, everyone is encouraged to

11 please not only comment publicly like this, but to the

12 extent you can, please put it down in writing, as well. I

13 think that will be very helpful to the agency. Peter,

14 you've been waiting very patiently. Can we get a microphone

15 to him and get close to the mic, please.

16 HERNANDEZ: Peter Hernandez. I had a question

17 about the impact analysis that was done, health, societal,

18 cost benefit, and I can save it for after lunch.

19 LESNICK: Yeah, can we do that, Peter, when we

20 focus more in on that? From the Republic of Texas?

21 [Laughter.]

22 ROGERS: With respect to NUREG-1640 and the fact

23 that you have not yet looked at soils, you might, also, want

24 to consider looking at other demolition debris that are not

25 suitable for recycling. You should model low concentration,

1 high volume in landfills, as at a very large commercial
2 landfill that receives high volumes of released material.
3 You should consider modeling the long-term implications of
4 the hazardous and the non-hazardous landfills separately,
5 because they have different liner requirements. You should
6 look at the formation and collection of leachate and, in
7 particular, it's the effect it has on the workers at these
8 non-radiological facilities. You should look at the
9 implications of land spreading, or some people call it land
10 farming. You might want to consider if this soil or other
11 demolition debris meets these very low release criteria,
12 that they might want to be left in place, instead of being
13 shipped across the country. And then, lastly, you should
14 consider defining clearly dilution in your rules and put a
15 clear prohibition, if you believe that to be appropriate in
16 the rules.
17 LESNICK: Thanks, Alice. Mike Mattia, we'll hear
18 from you and then we will take our lunch break.
19 MATTIA: I'd like to go back to the comment that I
20 made on that section in NUREG-1640 that deals with the issue
21 of consumer products. That doesn't mean that there is
22 concern over the exposure in steel mills and scrap recycling
23 industries from this material coming in, you know, residual
24 exposure, exposure to equipment. But, the issue of consumer
25 products literally is, I think, the driving factor, because

1 the material that is being proposed to be released has to go
2 somewhere, if it's not going to landfill. And it's going to
3 go to companies, like scrap recyclers and steel mills, who
4 are going to convert it into a product that is going to
5 become a consumer product. And by trying to address the
6 issue in one paragraph that I think has some flows -- some
7 significant flaws, is walking away from the majority of the
8 concerns that we have heard over these meetings, from
9 consumer groups, from the general public, from those
10 individuals who are saying I'm concerned about the frying
11 pan and the dental filling. It's not addressing their
12 concerns.
13 You know, I go back to the four points, the
14 concept that it's not a problem, but that doesn't address
15 the long-term decay. So, we don't talk about the long-term
16 decay and getting into consumer products.
17 There is an issue of mixing, and, again, the
18 question is: what kind of modeling was done. If we're
19 talking about a pound of this material going into 100 ton
20 melt, mixing dilution might make sense. But, what if we're
21 talking about 10 tons of this material in 100 ton melt.
22 Does that change the equation of what's going to come out as
23 a consumer product?
24 Again, the concept of partitioning, I don't think
25 that the issue of this material, as it's partitioned, if it

1 truly becomes partitioned, has been addressed; nor has the
2 concept that much of this partitioned material, such as slag
3 and flue dust, will continue to be reused and refined. And
4 it definitely doesn't raise the issue of the partitioning
5 becoming a problem, such as flue dust not being able to be
6 landfill, because of the concentration of radioactive
7 material is too high and it's a mixed waste and prohibited
8 for landfill by the EPA.
9 And the final sentence, the fact that consumer
10 products are small; therefore, they don't pose an issue
11 skirts the concept of what if you do have 10 tons of
12 contaminated nickel that goes into a 50 ton melt. If we're
13 only talking about a small -- does that dilution really
14 matter, if we're talking about a small consumer product that
15 will have a high concentration.
16 I don't think that NUREG-1640 has addressed what
17 is truly the most potent issue here, and that is the
18 consumer products, the consumer perception, what is the
19 hazards that could occur, when this material is released in
20 larger quantities.
21 LESNICK: Thanks, Mike. I think Bob wanted to
22 make a very quick comment before we take our break.
23 MECK: Right. Remember NUREG-1640 is just a tool
24 for conversation factor. But the philosophy that we've
25 talked about is whoever is in this critical group gets

1 protected to some level; and if that happens to be a
2 consumer, then they get protected to that level. So, they
3 would be protected, just like the truck driver would be
4 protected. And so, in that sense, you know, that's the
5 philosophy of the application of the results. But, that
6 application of the results of NUREG-1640 is a Commission
7 decision and not the purpose of this document.
8 LESNICK: Okay. Cliff, quickly.
9 HONNICKER: I have 30 seconds and then -- now,
10 thank you. Did you, in 1640, take into consideration the
11 other alloys that are mixed in with the nickel powder, the
12 several million pounds of nickel powder from K-25, the
13 chemicals that are mixed in with it, and the other radio
14 nuclides, besides the ones that may be listed that have been
15 recently uncovered in this billion dollar lawsuit down in
16 Paducah, that there are other contaminants in there that
17 were not prior -- previously disclosed to people? Did you
18 take that into consideration, in looking at the effect on
19 the first concentric circle of exposure, the workers?
20 MECK: NUREG-1640 analyzed steel, cooper,
21 aluminum, and concrete, and in the context of the processes
22 that general commerce uses to process those. And to the
23 extent that there are various ferrous alloys, yes, that was
24 taken into account. We did not analyze nickel. And I would
25 just simply have to look -- or look with you on the list of

1 radio nuclides that we analyzed and see if those are
2 included. So, that's the short answer.
3 HONNICKER: Well, that -- I didn't mean to give
4 you a trick question, but that is -- you can't, unless you
5 have a Q clearance, because that material is -- millions and
6 millions of pounds of that material is in the hopper to be
7 recycled, if they're not melting it already down, and the
8 substances that are contained within in are classified. So
9 for you guys to do an assessment of what the health impact
10 is, you've got to know. And we don't know and the workers
11 don't know.
12 LESNICK: It sounds like you've got a
13 recommendation, maybe.
14 MECK: Yeah, I want to clarify that this is an NRC
15 rulemaking, okay, and --
16 GUTTMAN: But, actually, Cliff has an excellent
17 point. How are you doing deal with the classified nature of
18 a lot -- as an NRC rulemaking --
19 LESNICK: Can you get closer to the mic for a
20 second, Dan, and then we're --
21 GUTTMAN: Dan Guttman. It's an NRC rulemaking;
22 but it's been pointed out one way or the other, we're
23 talking DOE waste and it is pretty well known that a lot --
24 the nickel, in particular, is highly classified. And as I
25 said, BNFL, which is theoretically going to dump it into the

1 public's, you know, frying pans, doesn't know what's in it.
2 That's what they testified. Do you guys know what is in it;
3 and, if not, how -- you know, I mean, how do we know that
4 everything is covered? And I understand you didn't study
5 nickel, but all the other stuff that is classified.
6 LESNICK: Let me -- Barb is going to make a
7 comment about this, because this is an important issue,
8 about the relationship with DOE, NRC, and these activities.
9 Barb, before I go to that, I want to just say, as we break
10 for lunch, folks, we're going to come back. Thank you for
11 the conversation about NUREG-1640 and all. This has been
12 extremely helpful, I think, to the agency.
13 Barb is going to talk a little bit about NRC, DOE
14 interface here. But, when we come back, we're going to
15 continue on our discussion about health and environment and
16 about economic costs, as well. So, we're going to continue
17 this session two for a while longer, when you come back from
18 lunch; so, keep that in mind. Barb?
19 STINSON: Yeah. And on the continuation of this
20 discussion, keep in mind we're talking about future analysis
21 and, so, there will be recommendations that you all can make
22 to the NRC that they can factor in to the development of
23 their future analysis; not that they can't take a lot of
24 that information in constructing, you know, future analysis
25 with gaps, as you're making recommendations on the

1 NUREG-1640 analysis.

2 I just wanted to lay something clearly on the
3 table, that I think we've circled around so many times in
4 these discussions, from the past workshops, and we're there
5 again for this workshop, and that is the relationship
6 between DOE material and NRC licensees. And it's a bit of a
7 perspective on it and then a question for all of you all.

8 I mean, I think what we're hearing is: (a) you
9 hear from DOE, they are going to either use as guidance or
10 adopt whatever the NRC does with regard to rulemaking on
11 this issue. So, they're paying a lot of attention. It's
12 clearly going to have impact at DOE facilities. That's on
13 the table.

14 On the one hand, you have, I think, the
15 environmental community and the worker community, the
16 unions, very concerned about protection of the workers in
17 the environment. And they are going to be looking to the
18 NRC -- they're going to be looking for any avenue they can
19 find to increase the protection for workers in the
20 environment, and that includes placing pressure on NRC to be
21 protective and to influence the future DOE process. I think
22 that's one force that we're seeing.

23 On the other hand, you have NRC, who has NRC
24 licensed facilities. They're not responsible directly for
25 DOE facilities and the material that is utilized at DOE and

1 you're not going to see the NRC taking responsibility for
2 DOE past actions and problems that have occurred. I mean,
3 I'm trying to just kind of clearly articulate some of the
4 differences here, so -- and maybe it's not very clear.
5 So, these two forces are at play at the table
6 every time we get into the discussion. And, you know,
7 really both forces and both perspectives are reasonable.
8 And the challenge I put to you all around this table is to
9 try to find, if you can, comments and questions that both
10 provide the kind of protection that people are seeking and
11 fall into the jurisdiction of the NRC and to -- I just want
12 to lay this question out, Dan. I don't want --
13 GUTTMAN: Yeah, but I think you just contradicted
14 the --
15 STINSON: -- I don't want to have further
16 conversations --
17 GUTTMAN: -- you contradicted the NRC's statement.
18 STINSON: Dan --
19 GUTTMAN: You contradicted directly --
20 STINSON: That's fine, and we'll hear -- we should
21 hear from you and hear from others. I just want to put that
22 question on the table for consideration.
23 GUTTMAN: Excuse me --
24 STINSON: And we're going to take our lunch break
25 -- Dan, we're going to take our lunch break --

1 GUTTMAN: No, wait a second, Barbara.

2 STINSON: -- and allow people to --

3 GUTTMAN: The NRC has told Congressman -- and this

4 is Dan Guttman. The NRC has told everybody --

5 STINSON: No, Dan, I'm going to cut you off,

6 because --

7 GUTTMAN: Barbara, you're making a statement that

8 is a directly contradictory statement. If the NRC has no

9 jurisdiction, then that Tennessee license is unlawful.

10 STINSON: Well, that's a question that is up for

11 debate.

12 GUTTMAN: That's an unlawful license and that's

13 what I will take back.

14 STINSON: At this time -- at this time, we're

15 going to --

16 GUTTMAN: We will take back that you have just

17 declared the Tennessee license unlawful and you can think

18 about it over lunch.

19 STINSON: Okay. We will think about it over

20 lunch.

21 [Whereupon, at 12:13 p.m., the workshop was

22 recessed, to reconvene later, this same day.]

23

24

25

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

2 [1:24 p.m.]

3 LESNICK: Gentlemen, let's continue our discussion
4 about studies. We are going to move on to a discussion
5 about environmental and health assessments and studies.
6 Giorgio provided an overview of the kinds of
7 categories of topics that NRC would intend to pursue. We
8 want to make sure that you have some input into particular
9 areas you think that they might want to emphasize or things
10 that weren't mentioned that you think they ought to take
11 under consideration of evaluating.
12 And let's just talk about environment and health
13 now for the moment. Then later on we will move on to
14 economics, Peter. Okay. Or do you have something on
15 environment, Peter? Okay. Let's go to Peter Hernandez.
16 HERNANDEZ: Peter Hernandez. I was curious if the
17 analysis that NRC is doing on potential impact relating to
18 -- and it was broader than just health and safety, but the
19 economics and that, including the potentially adverse impact
20 on affected recycling industries, or industries, metals
21 industries that recycle metals, including potential job loss
22 within those industries. And, if not, why not?
23 GNUGNOLI: We basically have not begun doing the
24 cost benefit analysis. Part of our efforts right now in the
25 studies is to pull together what we would need to do, what

1 kind of information would need to be gathered. A lot of it,
2 a lot of information we are not sure is really collated and
3 available, easily available at this moment. So we have a
4 number of folks helping us try to go out and query and find
5 that kind of information.
6 It would be an initial blush that we would try to
7 look at benefits and costs of any nature resulting from
8 these decisions, whether it would be a direct impact on a
9 recycler or a melter, or people who might be exposed to
10 materials coming from them, as well as the sort of once
11 removed kind of impact, like the film industry, how it might
12 affect them. At first blush, you wouldn't think -- they
13 wouldn't feel that they were being treated fairly. We had
14 nothing to do with it. All of a sudden we have to retool
15 our film production and stuff.
16 So we don't, at this point, where to draw the
17 boundaries and constraints on it. But we are trying to keep
18 an open mind about what to do with that.
19 HERNANDEZ: Peter Hernandez. Thank you. The
20 reason I asked is, of course, we would appreciate you
21 considering those factors on affected industries. And the
22 steel industry in the United States, sales are about $40
23 billion a year. If just 1 percent of the public decides it
24 is going to deselect our material because of a perceived
25 concern about radiation, that would translate to 1 percent

1 of sales, which is a significant amount and should be part
2 of the cost benefit equation we believe.
3 LESNICK: Thank you, Peter. I see a card. Mike
4 Mattia.
5 MATTIA: Just a basic question on Reg. Guide -- I
6 mean NUREG-1640 that I have asked in the past, and that is,
7 is there the potential of equating dose for release, a dose,
8 to what the material may measure if you were to put a
9 detector to it? This is an issue that has come up in the
10 last several sessions, that if you release material based on
11 a dose and that material, when it got to a detector, would
12 set the detector off, it might bring up a whole new school
13 of problems where it would be rejected. Is there a way, in
14 this document, or does the document exist that equate a dose
15 of released material to what that material would read if you
16 put a detector to it?
17 HUFFERT: Tony Huffert, NRC. We are working on
18 that right now, and this is implementation consideration
19 that would go into a Regulatory Guide if we were to do a
20 rulemaking. We are working with two contractors to help
21 answer this question. NUREG-1640 does not answer your
22 question, it simply gives the concentration of the
23 radioactive in and around the material and translating it to
24 dose.
25 You are asking a question about measurability, and

1 that is independent of 1640, so we are currently looking at
2 that. And we are looking at the impact that might occur if
3 materials were released at the NUREG-1640 levels and would
4 they set off alarms at scrap yards or landfills? And that
5 is a practicality that we have to consider.
6 LESNICK: So it sounds like that will be
7 forthcoming.
8 Let me open it for your comments and observations,
9 not just about environment and health, but also the economic
10 and cost considerations, George, if you don't mind, because
11 it sounds like some people want to go back and forth between
12 them. Kristen.
13 ERICKSON: Well, I would like to address the
14 combination of these issues in a sort of bigger picture way.
15 First of all, looking at the capabilities we have, and I
16 know this jumps ahead into surveys and measurements, but it
17 is all related, the capability we have to determine the
18 amount, first of all, of the isotope, its energy, the amount
19 right down to 10 to the minus 10th, 12, 15th, microcuries
20 per gram levels, we do this in our institution, we do it
21 routinely.
22 Then to be able -- there is technology that is
23 done and has been used for many, many years, very well, to
24 actually do in situ measurements of radioactivity, either in
25 soil, water or a big piece of equipment. We have

1 sophisticated dose calculation equations and abilities, that
2 we can take, and we have done this, again, a very complex
3 arrangement of metal and parts.
4 For example, our cyclotron has detectors that are
5 bigger than a train engine, four stories tall. To be able
6 to take an instrument and evaluate what is in there, and
7 calculate them, what isotopes, what levels, you are able to
8 translate that to doses. That is part of what -- how
9 physics does on the higher end. It is so accurate that you
10 can look inside, like we have done, a big drum full of heavy
11 lead and metal, and all kinds of metals, and determined what
12 elements are there, what ones are activated into radiation,
13 how much of each kind. Well, does that translate into DPMs
14 and microcuries, not just what I count?
15 And then you can take that and translate it over
16 to risk. This is science that is there, science that has
17 been used. And taking that one step further, I recommend
18 and suggest that this whole process needs to go and use a
19 lot of data that we already have. We have been using for
20 many, many years, limits for air and limits for water, and
21 we have 30, 40, 50 years' worth of data for those releases.
22 Many populations of people over many years, many scenarios,
23 many uses, many chemical forms and many pathways.
24 That data is already there. That can be used to
25 start determining the risk and applying that towards a

1 solid. There is very little difference if I put this liquid
2 into the water and it goes to the sewer, and, ultimately, is
3 in soil, which is ultimately in a plant or an animal, and
4 then finally in us. This is the same kind of scenario that
5 we do and know how to do in radiation safety and health
6 physics, environmental risk, biological effects, that is
7 what our jobs are really about. And this is certainly able
8 to be done and can be done.
9 So I think that, as I say, in the bigger picture,
10 people need to keep that in mind and also use that data that
11 is already there.
12 LESNICK: That is helpful, Kristen. And, also, I
13 guess, as you and others leave this meeting, and you might
14 reflect upon what else you think would be helpful for the
15 NRC to look into, further studies, analyses, I think they
16 would probably welcome as specific recommendations as you
17 would like to offer, either about categories or past and
18 existing studies that exist. I think that would be helpful
19 to the agency.
20 Can we move on? Paul, particular suggestions
21 about studies, either environment and health or economics,
22 cost side of this?
23 GENOA: Paul Genoa, NEI. I think what I was
24 trying to capture, actually, --
25 LESNICK: Can you get closer to the mike, please?

1 GENOA: Yes. Paul Genoa with NEI. And my comment
2 has to do with -- in response to some of the issues brought
3 by Peter regarding impacts on not just the environment, but
4 on businesses, companies and so forth. And I am trying to
5 differentiate between a real measurable impact such as
6 setting off a false positive at a landfill or a metal
7 detector at a scrap metal dealer, and the impact of a
8 perceived stigma associated with a product that would cause
9 harm to an industry. Both are real, and I think how one
10 deals with them maybe different.
11 In a real, measurable impact, if the NRC were to
12 move forward in the rulemaking and were aware that there
13 would be a real impact on an industry such as the sensitive
14 film industry or whatever, those impacts I believe have to
15 be avoided or mitigated.
16 When we talk about perception of the public, that
17 is a difficult challenge that you are faced with, and I am a
18 little empathetic, and I am empathetic with the industries
19 that could be affected because I am one. But I think that
20 the NRC has huge potential to influence that perception by
21 the way it conducts the rulemaking process and in its
22 activities in advocating, unequivocally, the safety of an
23 determination they ultimately make.
24 It is absolutely critical that if you move forward
25 with any standard for the release of this material that it

1 is then communicated to the public in terms with there is no
2 uncertainty that that standard is protective and that you
3 are absolutely behind that, and are willing to say so every
4 time it is questioned. Without having that type of
5 unequivocal support for the standards you set, the public
6 can reasonably be concerned, and the public trust and
7 confidence can be undermined and industries can be harmed.
8 And I think you need to be very serious about the soft side
9 of the science when you proceed with your technical
10 regulatory evaluations. Thank you.
11 LESNICK: Thanks, Paul. Jim, I know your card has
12 been up, but I would like to try and get in Charles Wilk
13 from Portland Cement Association, an industry that hasn't, I
14 don't think, participated as of yet. Maybe you have some
15 concrete suggestions about impact?
16 [Laughter.]
17 LESNICK: I couldn't resist that, I apologize.
18 WILK: Yes, I am Charles Wilk with the Portland
19 Cement Association. What I am about to say is probably
20 really an echoing of what Mr. Hernandez had to say, but to
21 really add our voice to this. What the NRC does could have
22 a profound effect on a number of different industries, and
23 one of those is the economic impact it might have, these
24 rules might have on the recipients of this material comes
25 from decommissioning of various facilities.

1 I think it would be important for the NRC to
2 conduct some sort of economic impact on the market,
3 detriment to the market of what people -- of the people who
4 would receive this material. It is somewhat obvious what
5 the economic benefits are to people who have this material
6 to put back into commerce, and it obvious they are going to
7 offset some disposal costs. But you should be looking also
8 at the injury or the costs to another industry of having to
9 receive this material.
10 It is clear from today's earlier discussions, that
11 it is quite an emotional topic and that emotion actually may
12 transfer into a real effect, that people may not be
13 inclined, whether it is based in science or emotion, they
14 may not be inclined to want to use these materials in their
15 everyday lives. And the NRC should include really a cost
16 and benefit -- include that under cost and benefit work.
17 I am just looking through my notes here. I
18 understand what Mr. Genoa said about it is important for the
19 NRC to somehow reassure the public of the safety of their
20 standards, that this is not going to cause them
21 endangerment. Having worked as a U.S. federal employee with
22 the U.S. EPA, I have been on the receiving end of the
23 public's distrust of different rules, and I don't really see
24 the federal government, or most agencies within the federal
25 government being very successful in gaining the trust of the

1 public any time soon, certainly not in the timeframe that it
2 would take for the market to feel -- for certain industries
3 to feel the effects, detrimental effects of what happen as a
4 result of the rulemaking.
5 The thing is there are emotions and there is since
6 and the science may be with the NRC as far as what the
7 health effects might be, but what will happen in reality is
8 economics, in economics, where the market forces are the
9 equalizers, really, in U.S. life, and it would be very -- I
10 think it would be very important, really, for the NRC to
11 factor in what the negative perception is of people and how
12 that will affect the market for these different materials
13 that are the recipients of this waste material from
14 decommissioning. Thank you.
15 LESNICK: Thanks, Charles. Let me continue on.
16 Jim Turner, thank you for waiting.
17 TURNER: Jim Turner from U.S. Steel, Steel
18 Manufacturers Association. I have been to all four of these
19 meetings, and I have got a couple of questions which I am
20 looking at. I probably should have asked them at the first
21 meeting, not that I wasn't paying attention. But I think my
22 concern all the way through has been the perception by our
23 customers of our product, or the stigma that it might have,
24 all of these recycled products, business interruption,
25 health and safety and so forth. Job loss, as Peter said.

1 LESNICK: Can you get a little closer, Jim? I'm
2 sorry. So we can hear you.
3 TURNER: I can't see around it. All right.
4 My first question is this regulation, to whom will
5 it apply? Is it just going to apply to "official nuclear
6 facilities" or will apply to industrial facilities,
7 recycling facilities that handle this released material to
8 them, or will it apply to industrial facilities that
9 inadvertently process a radioactive source and become a
10 nuclear facility, although they don't want to? That is the
11 first question.
12 And the second question has to do with economics.
13 LESNICK: There we go.
14 TURNER: And just on a rough calculation, I have
15 heard numbers of 300,000 to a million tons of steel scrap,
16 and if you assume $100 a ton of scrap, that is $30 million
17 to $100 million in benefit to somebody. And my question
18 here is, the economics, who are they -- who is going to
19 benefit from them? In other words, is it the nuclear
20 facilities, that they are going to sell the recyclable
21 materials to the recyclers? Or is it the recycling industry
22 and the public? Are they going to discount the materials?
23 Are they going to be free? And I would just like to hear
24 how that is going to be addressed.
25 LESNICK: Is that it?

1 TURNER: That's it.

2 LESNICK: Thank you, Jim. I don't know, on the
3 first matter, who would this apply to, if there were such a
4 rule? Trish, did you want to comment on that?

5 HOLAHAN: I think, as we discussed a little bit
6 earlier, this would apply to NRC licensees, and then in
7 those states that are agreement states, for the agreement
8 state facilities. Now, one of the issues that we have
9 discussed at some of the other meetings, and we will
10 probably get more into this as we get into the alternatives,
11 is depending on -- if we proceed with rulemaking, and what
12 alternative is selected, for example, there is a restricted
13 release, the question is, is how do you restrict that, and
14 would there be a need for some type of license or something
15 for ongoing work? So in that case, then you might have
16 other impacts down the line that would have to be
17 considered.

18 Did that answer your question? In terms of the --
19 you asked the question I think, also -- I'm sorry.

20 LESNICK: Does that help clarify that?

21 TURNER: I am not sure. I guess my real basic
22 question would be, if a company processes a source and
23 irradiates some of its materials, say a steel company
24 processes a radioactive source, now they have to hire a
25 remediation company who is a licensed contractor, and

1 becomes a licensee of the material possibly, will these
2 regulations apply to that release of those materials? Even
3 though it wasn't a nuclear facility previously.
4 HOLAHAN: You are asking the question that if the
5 facility becomes contaminated and you clean it up and what
6 you are doing with the material that is then going to be
7 taken offsite.
8 TURNER: Do these regulations apply to that?
9 HOLAHAN: I would think that it terms of trying to
10 find out where it would be going, yes, those limits could be
11 used to dispose of that material.
12 TURNER: Thank you.
13 LESNICK: On the second question, Paul did you
14 want to --
15 GENOA: To ask a clarifying question.
16 LESNICK: Yes, if you would pull the mike --
17 GENOA: I have talked with the good-looking Turner
18 before.
19 LESNICK: Even closer.
20 GENOA: Paul Genoa, NEI. I think what they are
21 saying is in the past there have been orphan sources that
22 have been melted down. That has caused a harm to the
23 industry and they were held to certain standards when they
24 wanted to release the fly ash or whatever else, so NRC
25 regulations were imposed on a non-NRC licensee.

1 The question is, looking to the future, if there
2 was a standard in place and one of these unfortunate events
3 occurred, would in fact the standard provide at least a
4 decision point for the release of materials from such an
5 incident?
6 HOLAHAN: Yes.
7 LESNICK: Thank you for clarifying that. The
8 other question, if I understood it, you said there are some
9 assumptions about tons of steel and who might benefit from
10 that activity. Georgio, I don't know if that kind of
11 analysis has been done or not yet.
12 GNUGNOLI: At this point I would say that there's
13 a number of benefits. One benefit would be to the company
14 if they had the option of disposing of it at a solid waste
15 disposal site instead of having to pay for the higher
16 disposal costs at the low level waste disposal site. There
17 would be an economic benefit there.
18 If the material could be recycled, perhaps steel
19 is highly desired in terms of recycling, but other metals
20 that may be more valuable like titanium, there would be an
21 economic benefit to be able to recycle that if it were
22 possible so it's both in effect cost avoidance as well as
23 cost benefits or taking advantage of it costwise at this
24 point.
25 There are a lot of tendrils in terms of who

1 benefits from a decision on that. The question was both is
2 it a cost avoidance the benefit, or actually cost
3 acquisition the benefit and the answer is "yes."
4 LESNICK: Okay. Let's move along here. I would
5 like to try and stay as close as we can to the original
6 agenda so as close to "2" as we can. I think we ought to be
7 moving on to Session 3, so let's try and move with some
8 vigor through these cards.
9 Bill, let's go to you for other issues you want to
10 make sure the agency looks into.
11 LIPTON: Bill Lipton, Detroit Edison.
12 The NRC already sanctions the distribution of
13 radioactive materials without control, things like
14 self-luminous devices, smoke detectors, and I don't think
15 it's a NRC licensing issue, but people talked about
16 radioactive material in dental work. The industry already
17 adds uranium to false teeth -- otherwise they would be
18 discolored and people accept this. These are all legal and
19 people accept them.
20 You know, the lady who was concerned about
21 radioactivity in the window frame didn't express any concern
22 about radioactivity in the exit sign next to the window
23 frame, and these all can lead to a public dose if there is a
24 mishap.
25 Has anybody looked into benchmarking these already

1 established practices and using that as the basis for
2 extending rulemaking to other recycling or other
3 distribution of radioactive material?
4 LESNICK: In terms of the health and safety issue?
5 LIPTON: Yes. These are risks which are accepted
6 by the public and the benefits are clear and the risks are
7 clear and they are acceptable.
8 HOLAHAN: Yes. There will be further discussion
9 on this in Session 3 if I can just ask to --
10 LESNICK: Yes, that would be great. Jud?
11 LILLY: I have --
12 LESNICK: Get close to the mike, please.
13 LILLY: Okay. My name is Jud Lilly, and I am with
14 the Department of Energy. I have two recommendations for
15 both your health effects study and your economic analysis.
16 You have included the impacts of mining
17 replacement metals in both the health issue and the economic
18 issue. I would encourage you to also include the energy
19 requirements of converting native ores into valuable metals
20 and also the increased land that would be taken out of
21 production if all the material that we are talking about is
22 disposed of as low-level waste, the environmental and
23 economic impacts of removing that land from the economy
24 should be included in the analysis.
25 It is expanding upon your already broad-based

1 examination of those two issues.

2 The other point I wanted to make was I wanted to

3 go back to a point that Mr. Cliff I believe was wondering if

4 the analysis that had been done of the classification issues

5 of the nickel would make the limits that have been proposed,

6 if that would skew that.

7 I have talked with Bob Meck. I don't think the

8 classification issues will have any effect on the ability to

9 apply these limits to the nuclides that are in the nickel

10 for free release, so I don't think that is an issue.

11 LESNICK: Thank's for clarifying that.

12 HONNICKER: If I could respond just for one second

13 to that, I think that would be fine, I would accept your

14 answer 100 percent if you would tell me exactly what was in

15 that nickel, if you would tell the workers exactly what was

16 in that nickel and if you would explain to them right now,

17 people who are suffering from chronic fatigue, who are

18 suffering neurologic problems, brain lesions, a whole host

19 of health problems right now from exposure to that nickel,

20 to which Secretary Richardson has already apologized for, to

21 what we are meeting with the Secretary of Health,

22 Environment & Safety tomorrow in Oak Ridge to deal with

23 these issues.

24 I don't accept it when you say this pro forma "I

25 don't think there's a problem." There is a problem.

1 LESNICK: Okay, gentlemen, this is an issue that
2 sounds like for you all to talk about in Tennessee between
3 DOE and the folks there.
4 HONNICKER: No, it is a bigger, it is a much
5 bigger issue and I hope -- I mean you all paid a thousand
6 dollars for me to come up, to fly, to be here at this
7 meeting, and I hope that I can have maybe 10 minutes of your
8 time to give a real overview of the nuts and bolts of what
9 is going on right now, because what is going on right now,
10 the reality affects the theoretical.
11 What you guys have right now -- theoretical,
12 hypothetical. We are dealing with reality and I hope that
13 we can make a presentation and inject the difficulties of
14 what we have to deal with right now that will shed maybe a
15 little bit of wisdom on your rulemaking.
16 LESNICK: Thanks, Cliff.
17 GUTTMAN: -- Is Mr. Lilly making a statement on
18 behalf of the Department of Energy, in which case we will
19 follow it up vigorously, because we understand you are
20 basically clueless as to what is in nickel at Oak Ridge, and
21 if you are telling us now it doesn't matter what is in
22 there, that is a very interesting statement -- are you
23 speaking personally or on behalf of the Department?
24 LILLY: No, I am speaking on behalf of the
25 Department and I was not saying that we are clueless as to

1 what is in the nickel.

2 GUTTMAN: Then I would like to know right now when

3 you are going to give us the data on what is in that nickel.

4 LESNICK: Gentlemen, you might want to get

5 together during the breaks and -- again, this is something

6 between you all that is different from what is at this table

7 at this moment.

8 GUTTMAN: No, it is not different. This is most

9 of the metal in this -- it is an issue --

10 LESNICK: Let me move on.

11 GUTTMAN: I don't mind if you are shutting us off.

12 You can't shut us off by saying things that are directly at

13 odds with the realities -- we are talking about most of the

14 metal here is DOE metal is not true.

15 LESNICK: I am suggesting that the issue that you

16 all have been going back and forth on is something that is

17 extremely important to both sides and you ought to pursue

18 it. I am not saying not --

19 GUTTMAN: -- very important to the country if you

20 are going to get the benefit of having your [inaudible] come

21 from this material.

22 LESNICK: Thank you. Dan

23 SZWED: Dan Szwed for AK Steel and the special

24 steel industry of North America. Just a couple of comments

25 to follow up on the economic issues.

1 I've heard a lot of commentary about how our
2 scientific procedures are very wonderful and we can analyze
3 things down to minute details with limited or no
4 uncertainties.
5 I think we need to apply the same kind of detailed
6 analysis on the economics but recognize we have to deal with
7 the uncertainties on the economics. We are dealing with the
8 perception of the consumer here, and it is going to go from
9 the consumer that says I want to buy a new car to the car
10 company that says I don't want radioactive steel or
11 radioactive metal in my car, and it is going to come back to
12 the main producers of those products. It's going to deal
13 with product deselection. It's going to mean retooling for
14 many major industries and there's three other things we need
15 to consider here that we have learned from the environmental
16 protection regulations that have been out for the last 30
17 years now.
18 One is you can't transfer the problem. Two,
19 dilution is not the solution -- and the way to deal with it
20 is through pollution prevention at the source.
21 LESNICK: Tony, you have been waiting for awhile.
22 LAMASTRA: Tony Lamastra. The slides seem to give
23 me an impression that the NRC is only intending to factor in
24 the economic costs to the regulated industry and I am really
25 hoping that that is not true.

1 GNUGNOLI: Not at all. I mean we were talking
2 about the costs that may not be reflected in dollars, like
3 construction of roads, noise. I mean we are not looking
4 just at what it costs the industry but what it can cost the
5 community and what benefits could come to a community.
6 In effect, we have to look -- if we are going to
7 get the net positive value to society we can't take that
8 limited point of view.
9 LAMASTRA: Tony Lamastra again. Over and above
10 the net or the general society, are you also going to take
11 into consideration what Dan just brought out and what the
12 steel industry has been saying all along and the metals
13 industry, that essentially will you try to work up some way
14 of evaluating the public perception of risk and how that
15 affects the potential for deselection, and then what that
16 means to the industry, because I think if you don't do that
17 you are really -- I can't see how you are doing a real
18 economic impact.
19 GNUGNOLI: Georgio Gnugnoli, NRC. That may have
20 to fall into a qualitative assessment. It may be difficult
21 to put numbers on that kind of thing and if we do it might
22 be somewhat suspect.
23 I mean if in our development of the methodology of
24 doing the cost benefit analysis we can quantify, we will try
25 to do so because it makes the decision more logical, more

1 approachable, but in those cases where things like
2 environmental justice is involved it is just very difficult
3 to quantity, we will still try to factor in a qualitative
4 fashion those factors that will affect the decision of
5 whether it is of positive net or not.
6 I can't be that specific at this point because I
7 am not exactly sure at this point how that cost benefit
8 analysis is going to function, but that comment as well as a
9 number of other ones we have heard we will have to look at.
10 we are very aware of the perception as well as the reality
11 that the perception can't drive decisions, so yes, that is
12 something we are going to try to effect -- to include in our
13 evaluation, but at this point I don't know if we can do it
14 quantitatively.
15 That is the problem I am having at this point. It
16 may be that we can do that but right now I really don't have
17 the vision of that.
18 LESNICK: I have seen several cards go up there so
19 let's take the remaining cards before we move on to Session
20 3, okay?
21 Steve, I am going to get you in here because we
22 haven't heard from you during this session.
23 COLLINS: Steve Collins, the Illinois Department
24 of Nuclear Safety.
25 Two items. One of them is if you back off and

1 look at this as a regulator you have got to say why am I
2 subjecting myself to this? I mean the metals industries
3 don't seem to want to have any part of it. It is a few
4 years before there's too many utilities that are going to
5 have a great need for it. The regulators have been doing
6 these kinds of approvals or granting on a case by case basis
7 for decades with small amounts occasionally going out there.
8 There is nothing in this world that is not
9 radioactive. Every frying pan and every brace is
10 currently -- and every hip replacement is currently slightly
11 radioactive, so someone, and I think it is the Nuclear
12 Regulatory Commission's responsibility along with the EPA to
13 initiate a process, which you are doing.
14 Someone needs to come up with is there a level
15 below which we don't need to regulate it, and hopefully we
16 are collecting data to get to that point. I know that also
17 from the State of Illinois perspective, no matter what level
18 you come up with, Illinois and a lot of the other states
19 that we have talked to want to have the authority to
20 continue, regardless of what the NRC puts in its regulations
21 to continue case by case evaluations and to be more
22 restrictive if we so choose.
23 It would be nice if we could address this on two
24 different levels, which I think we have been, but we have
25 kind of been ignoring one of them, and it is the primary

1 authority in the Atomic Energy Act and most state statutes
2 to address radiation protection issues as one of health and
3 safety.
4 The independent scientific organizations that all
5 make recommendations, whether it is international or
6 national, even U.S. EPA -- U.S. EPA calls 1 millirem a year
7 a trivial dose; NCRP calls it a negligible individual dose;
8 and ICRP and IAEA basically I think use the same negligible
9 individual dose, so scientific bodies have given the
10 regulators some guidance.
11 Some people still do not find that level or that
12 number, if it would be chosen to be acceptable, so from our
13 perspective I am glad the NRC chose to come up and take all
14 the heat from proposing something, but some kind of a
15 scientifically-based number is needed to be used by the
16 regulatory agencies that all of the different parties,
17 whether they are current licensees or somebody that might
18 get this stuff dumped onto them, can be aware of upfront and
19 it is not set by policy but that it goes through a formal
20 rulemaking and administrative procedure process to be
21 developed.
22 LESNICK: Some of those conversations, maybe as we
23 talk about alternatives and your sense and your colleagues
24 about what you think is appropriate.
25 Let's just go down this side and finish up Session

1 2 here. We'll go Tom Civic and then Mike, Pete, and who
2 else have we got, down here, Charles and Don.
3 CIVIC: Tom Civic from the American Iron and Steel
4 Institute. And perhaps after I talk, maybe the next person
5 who would add to my comments would be Pete Hernandez on the
6 issues regarding public perception.
7 However, I'd just like to make a comment regarding
8 the NRC's statement about coming up with only qualitative
9 economic impacts of the effects on the industries that are
10 going to be affected from the use of this material.
11 It seems to me inconsistent that we can make all
12 kinds of assessments and assumptions for risks that we can't
13 measure, come up with that say one millirem is
14 insignificant, based on data.
15 We can make all kinds of assumptions on how a
16 pound of this material was going to flow through the
17 process, and how many people are going to be exposed to this
18 with different risks, and we can't come up with some
19 reasonable assumptions that will be made and from studies
20 that can be done to determine the economic impact of this
21 releasing of this material.
22 It seems to me that if the NRC does not have that
23 information, perhaps they do have the wrong consultants
24 advising them, and they may need to get some people that
25 have some expertise in developing economic impacts.

1 LESNICK: Thanks, Tom. Also, I think we'll hope
2 that different industries might provide information, the
3 best that you've got available as well in this kind of
4 circumstance.
5 Mike?
6 MATTIA: The one word we've heard a lot over the
7 last at least hour, is the concept of perception. In a
8 consumer-driven market, perception is reality.
9 A steel mill won't buy scrap if they perceive it's
10 a problem. An automaker won't buy steel if they perceive
11 it's a problem.
12 That's because a buyer won't buy the auto if he
13 perceives it's a problem. Consumers, whether it's in the
14 United States or abroad, they buy based on emotion and
15 perception and rarely on fact.
16 And that's been one of the problems because this
17 material, if it's going to be released, is going out into
18 the marketplace, and the marketplace has been saying for a
19 long time, we have a problem because of consumer perception.
20 We can -- we'll listen to individuals who will cry
21 about frying pans and dental fillings, and those of us who
22 may be in the know will say, well, that's not going to
23 happen. But they don't know that's not going to happen.
24 Consumers don't know that's not going to happen.
25 The problem is that you, meaning the NRC, meaning

1 the DOE, or meaning anyone who is sitting on this material,
2 want to release it, but you want to release it into
3 industry, and industry is saying, but I'm not comfortable
4 with that.
5 However, there are some facts that we know are
6 there. We know there's material there that isn't
7 contaminated, that's never been near contamination. How do
8 we know that's what we're getting?
9 How do we know that we can assure ourselves of
10 what we're getting?
11 There is material that might be decontaminated
12 that some consumer would be willing to accept because he has
13 a market for it. And there is material that no one would
14 accept, and how do we know that that's not going to get into
15 streams that are unacceptable?
16 But that's the bottom line. We do not understand
17 what the facts are, because they're garbled or they're not
18 there, and you're thinking about making a rulemaking that
19 will affect stakeholdres, without the stakeholders having an
20 initial buy-in to accept the premise.
21 So, before you can even think of having a
22 rulemaking -- and we've said this time and again -- you need
23 to allow the stakeholders, the steel industry, the recycling
24 industry, the consumers, the special interest groups, those
25 that will be releasing the material, whether it be the power

1 industry or medical, to be able to agree on what the facts
2 are, to agree on what the parameters of dealing with this
3 material is, how much is it?
4 What does it look like? How do I know what it is
5 when I see it or measure it? What industries will accept
6 what material? What consumers will tolerate what?
7 And then when you have that consensus, then you
8 can make a rulemaking to enable that to happen. But in
9 essence, you're putting the cart before the horse, you're
10 trying to make the rulemaking to issue the material out, and
11 then we've got to figure out what are we going to do with it
12 once it gets out there.
13 Let the stakeholders, the consuming public, the
14 industries, agree on what they will do with the material,
15 what they will accept, what parameters they can agree with,
16 and what parameters they cannot.
17 And once that is achieved, then you do a
18 rulemaking to make sure that those wishes happen.
19 And that's why we've said that there needs to be
20 convened, an interest group that studies that problem,
21 gathers the facts, and issues recommendations so that all
22 the groups that will be affected will have some agreement on
23 what is tolerable, what is acceptable, and what isn't.
24 LESNICK: Thank you, Mike. Let's move on to Pete
25 Hernandez, and then Charles and then Dan.

1 HERNANDEZ: Peter Hernandez. I want to bring up
2 some material information that might be useful to the
3 participants, and also I have a question, a followup
4 question.
5 We asked the Worthland Group to poll four focus
6 groups regarding the free release of metals. Participants
7 were told that several facilities that previously used to
8 produce nuclear material or generate nuclear power were
9 being decommissioned.
10 It was explained that these facilities were very
11 carefully regulated by the NRC, which ensured the safe
12 handling and disposition of any unsafe radioactive
13 materials.
14 Considerable effort was taken in the description
15 to avoid prejudicing responses. For example, the word,
16 contaminated, was never used. Words like safe and
17 negligible were used to describe the materials.
18 Reaction to this concept nevertheless was
19 overwhelmingly negative. Over 80 percent of the respondents
20 felt that it was a bad idea.
21 Uncertainty, risk aversion, and skepticism of
22 government oversight all underlie the strong negative
23 reaction to releasing and recycling any materials previously
24 used at nuclear facilities, regardless of how safe the
25 Nuclear Regulatory Commission or the Department of Energy

1 deem the material to be.

2 Perceptions of all steel would be negatively

3 impacted, and consumers would actively de-select products

4 made with steel, according to Worthland.

5 I wanted to just communicate those findings to

6 you.

7 Secondly, as a followup to a point that Paul made,

8 which I think was a valid point, that if you're going to set

9 a clearance limit, the public has to be assured that it is

10 absolutely safe.

11 But my question is, what role does ALARA or would

12 ALARA play if you set such a standard? I see this is as if

13 you say that one millirem is absolutely safe, and you also

14 say something about ALARA, you're sending a mixed signal.

15 LESNICK: Some of the most recent comments have

16 almost moved us into this third session, so I want to ask

17 NRC, do you want to answer this ALARA question or issue now,

18 or do you want to wait till we move into further analysis?

19 Can you hold off with that, Pete, because I think

20 that's an important ingredient of having that discussion.

21 So let's quickly move on and see if we have other things

22 about studies so we can jump into the stuff that you all

23 seem to want to talk about in more detail.

24 WILK: My comment is not that different than Mr.

25 Lamastra's or Mr. Hernandez.

1 I think I would still like to reiterate that it's
2 important to do a cost/benefit study, factoring in the
3 effect on the market for the recipients of this material.
4 The gentleman from DOE stated that it's difficult
5 to measure perception. At the Portland Cement Association,
6 we measure perception for a number of things, including
7 concrete for residential homes.
8 And either our market research department and
9 their contractors are bamboozling us, or, indeed, you can do
10 perception studies, and quantify those perceptions.
11 LESNICK: Let's move on. The last word on Session
12 2?
13 GUTTMAN: Dan Guttman from PACE. I think this is
14 actually a followup. I think it's germane, and it's
15 instructive, so therefore it may not be relevant.
16 The question is, on the question of quantifying
17 perceptions, if I may, I've been here now --
18 LESNICK: Get closer to that microphone or you're
19 not going to be on the record.
20 GUTTMAN: There was something that was screwed up
21 in the last transcript to my betterment, not to my
22 detriment, so I'm not upset about not being correctly
23 quoted.
24 LESNICK: Maybe it will cut the same way this
25 time.

1 GUTTMAN: On the public perception issue, as I
2 understand it, we sat here through this session and the last
3 session, and a number of people remarked the last session
4 that there didn't seem to be anybody at the table that was a
5 proponent of let's make it simple without the metal
6 industries being offended by volumetric recycling. Let's
7 make it simple.
8 I think the utilities folks, Mr. Genoa, said that
9 you've got no interest in making money from volumetric
10 recycling. Obviously you have a very legitimate interest in
11 dealing with your waste problem, and you don't want to have
12 it cost money.
13 But you're not in the business, at least at
14 present, of volumetric recycling. The state people have
15 said you've got the responsibilities of regulators. You
16 want to assure health and safety, and part of it is having
17 the best, most expert, well founded standards.
18 The steel people, the environmentalists, the
19 special interests, have made their positions clear. The
20 scrap folks, I think their position is, look, you know, if
21 it's ethical and legal we'll do it, but it ain't obvious.
22 My question is, on the quantifying of perceptions,
23 can you please tell us, since I know that Mike and everybody
24 else, Barbara, did their best to get representative groups
25 here, where is there anyone in this room -- let's make it

1 simple -- is happy to get up here and say why they think
2 there should be volumetric recycling for unrestricted use,
3 not simply for a labeled watchband or an exit sign, with
4 unrestricted reuse, and without recall. We don't know what
5 it's in, so you can't recall the exit sign.
6 Is there anybody in this room in favor of that? I
7 mean, that would be a nice, simple, quantitative measure.
8 Was there anybody in the room last time? Not to
9 my knowledge. And if there is nobody in the room, isn't
10 that a measure of public perception?
11 LESNICK: I think that's an important point.
12 GUTTMAN: And if there is nobody in the room, can
13 you tell us what comments, because we all want to be
14 educated. What comments have been filed before you folks
15 saying, gee, what a great idea. We've been sitting here for
16 the whole two millennia waiting for the opportunity to
17 recycle volumetric material. If there's some way to sneak
18 it in before Y2K, you know, is there anybody we can look to?
19 Who do we look to to find out why this is a publicly good
20 idea?
21 LILLY: Dan, if you recycle surface material, the
22 first thing you do is melt it, and as soon as you melt it,
23 you have volumetric contamination, so all you have is the
24 difference between surface releases and volumetric releases,
25 and that's one step.

1 GUTTMAN: I'm not asking -- okay, if that's an
2 answer, my question is, so Secretary Richardson, as I
3 understand you, is in favor, he is an advocate of the
4 recycling for unrestricted reuse in consumer products of any
5 kind, without any recall mechanism. Is that what you're
6 telling me, so we can convey that back to Washington?
7 Are you speaking for Secretary Richardson now?
8 LILLY: That's the policy that we have, the policy
9 that we had when we awarded the BNFL project has not
10 changed. We think this makes sense. We think it is safe,
11 it is regulated, and that's why we're pursuing it.
12 GUTTMAN: And do you know of anyone else that
13 likes that policy except for the BNFL SAAC folks who get a
14 quarter of a billion dollars for it? Anybody else you've
15 got that can support that?
16 LILLY: Anybody who has a surface release process
17 is eventually going to get into a volumetric issue.
18 LESNICK: Gentlemen, actually, Dan, this is a good
19 segue, because I think you raise the point that we want to
20 get to, which is what -- given what people now know and
21 understand and have heard, to have some discussion about
22 thoughts about alternatives.
23 What are some ways of managing and controlling
24 solid materials? And that's, as you heard from the Agency
25 at the beginning, it's a topic they're going to want to talk

1 about for the rest of this afternoon and tomorrow.

2 We've got to get into understanding some of these

3 alternatives first. Barb, we have an obligation for quick

4 public comment availability, and then we can move on to our

5 session.

6 Is there anyone who would like to make a quick

7 comment or ask a question that's not around the table before

8 we jump into talking about some of the alternatives?

9 Sir, if you would move to the mike and identify

10 yourself.

11 VOICE: From the Illinois EPA. The other

12 constituent group that doesn't seem to be here is the people

13 who run the solid waste landfills. In Illinois, unlike

14 Texas, almost all or our landfills are run by private

15 companies.

16 I don't know if you've ever been to one of their

17 siting hearings where local government and local people get

18 to comment on whether this is a good thing or not. But when

19 they're told they can't put their grass clippings in the

20 landfill, but radioactive waste can go there, that might not

21 go over too good. I have a feeling it's going to have a big

22 impact on the siting of new landfills, at least in this

23 state.

24 I recommend that somebody from the waste industry

25 be involved with this.

1 LESNICK: Just so you know, the Solid Waste
2 Association of North America has been monitoring, and they
3 had an individual come to one of the meetings, and I know
4 they have an interest, and the Environmental Industries
5 Association, I think, which is the private sector version is
6 monitoring as well.
7 I think they intend to write comments. But the
8 point is that they're not here today, necessarily, those
9 organizations as organizations.
10 Can we move on to Session 3? I think people are
11 keen to start getting into this.
12 Who are the folks who are going to be doing the
13 presentations on Session 3?
14 BARNETT: Could I make a comment? I missed my
15 chance.
16 LESNICK: Certainly. Would you introduce
17 yourself?
18 BARNETT: Jack Barnett, Radiation Chief for Region
19 V.
20 About a month ago, DOE was planning to send about
21 four ounces of mixed MOX fuel, plutonium/uranium fuel from
22 their facility in New Mexico up to the Chalk River reactor
23 up in Ontario.
24 And the route would have taken it through the
25 south side of Chicago, through the state of Michigan, and

1 then across the Mackinaw Bridge up into Ontario. And the
2 Mayor of Mackinaw City wanted to lay down on Mackinaw Bridge
3 to stop this from going across, four ounces.
4 So I guess my point is that we're talking about
5 perception here, and there are very few things in this earth
6 that are more provocative than the idea of radioactive
7 waste, radioactive materials, or radioactive substances.
8 And the perception, as somebody said earlier, can
9 be reality. And I think that if we're really thinking about
10 releasing these things, we better make sure that we have the
11 right stakeholders at these meetings.
12 As I look around this room, you know, one of the
13 strengths of our country is our cultural and racial
14 diversity, and, frankly, with very few exceptions, I don't
15 see too much of that here at this meeting.
16 EPA, Region V, which is very similar to NRC Region
17 3, has 29 recognized federal tribal groups, many of whom
18 would be impacted by this, certainly Prairie Island, which
19 is up in Minnesota, which is a power plant on an Indian
20 Reservation on the same island. Those folks aren't
21 represented.
22 And I think the gentleman from the Illinois EPA
23 mentioned, too, I don't see the municipalities, the great
24 cities of Chicago, Detroit, Cleveland, et cetera,
25 represented.

1 So is this a workshop or is this a public meeting?
2 I just don't think we're really reaching the full breadth of
3 the stakeholders that should be here.
4 LESNICK: Thank you very much. Okay, folks, let's
5 move on here.
6 CARDILE: Okay, I want to introduce Steve. There
7 are several of us who are going to be making this
8 presentation, myself, Tony Huffert, Steve Clemenowitz from
9 the Office of Nuclear Reactor Regulation at NRC who has
10 joined us at the head table.
11 What we're going to try to do in this session is
12 to try to take the rest of today and tomorrow to try to
13 focus our discussion on alternatives for control of the
14 various materials and the costs and impacts and benefits
15 associated with each of the alternatives that you're
16 probably thinking of.
17 We've talked a lot about various things we can do,
18 what we should do, and we'd like to try to at least focus
19 that a little bit.
20 What should we do to control these materials? We
21 could continue our current case-by-case approach, or we
22 could establish criteria for control of solid material so a
23 formal rulemaking process with analysis of health and
24 environmental impacts and cost impacts --
25 Specifically, we could do several things: We

1 could not permit release of materials from radioactive
2 areas, or we could establish restrictions limiting release
3 of solid materials to certain authorized uses, or we could
4 set acceptable dose levels which must be met before
5 materials could be cleared for unrestricted use.
6 As I will describe in some more detail later, and
7 we have this on the flow chart, these alternatives differ in
8 how much they tighten the controls on release of solid
9 materials from licensed facilities.
10 We will also consider other possibilities. There
11 are other alternatives, some of which have been suggested
12 here today, and some of which have been suggested in earlier
13 meetings. Tony will discuss the first alternative, which is
14 to consider our current case by case approach.
15 HUFFERT: Thank you, Frank. The current NRC case
16 by case approach, as pointed out earlier in Trish's session,
17 the NRC does have regulations for the disposal of solid
18 materials containing relatively large amounts of
19 radioactivity. But the current NRC regulations do not
20 contain generally applicable dose criteria for the control
21 of solid material with relatively small amounts of
22 radioactivity that is either on or in the material and
23 equipment.
24 Even though we do have such criteria in place to
25 cover the release of solid materials, it is likely that

1 licensees will continue to seek to release solid materials
2 for small amounts of radioactivity, when that solid material
3 becomes obsolete or otherwise unusable during operations or
4 when their facility is being decommissioned.
5 We do have regulations that require licensees to
6 survey materials to evaluate their radiological hazard. One
7 set of criteria licensees use to evaluate solid materials
8 before they are released is Regulatory Guide Number 1.86.
9 This is entitled "Termination of Operating Licenses for
10 Nuclear Reactors." A similar guidance document is Fuel
11 Cycle Policy and Guidance Directive Number FC-8323. This is
12 called, "Guidelines for Decontamination of Facilities and
13 Equipment Prior to Release, for Unrestricted Use, or
14 Termination of Byproduct Source or Special Nuclear Materials
15 Licenses."
16 Both documents contain a table of acceptable
17 surface contamination criteria. The tables of surface
18 contamination criteria do not apply to solid materials with
19 contamination spread throughout its volume, such as soil.
20 For some situations, NRC allows releases of
21 volumetrically contaminated solid material, if the survey
22 does not detect radioactivity levels above background
23 radiation levels, and this is sometimes referred to as a "no
24 detectable" policy. This does not mean that material is
25 released without any radioactive material on or in it. It

1 simply means that the material may be released with very low
2 levels of radioactivity that is not detectable with
3 radiation monitoring instruments, and detection sensitivity
4 levels under this policy are consistent with those of the
5 average values given in Regulatory Guide 1.86.
6 The NRC also evaluates specific requests for the
7 release of solid materials on a case by case basis, which is
8 discussed further on the next slide.
9 First, I would like to discuss Regulatory Guide
10 1.86 and its equivalent, Fuel Cycle 8323, further. In 1974,
11 the AEC published Reg. Guide 1.86 and in 1982, the NRC
12 published Fuel Cycle Directive 8323. The Table of
13 Acceptable Surface Contamination Levels are applicable to
14 various radionuclides and surface contamination levels are
15 stated in terms of measurable radioactivity levels and were
16 based principally on the detection capability of readily
17 available survey instruments at the time the guide was
18 developed about 25 years ago.
19 Some of the limitations of this guidance are that
20 it is only -- it only contains numerical limits for the
21 amount of radioactivity that can be present on the surface
22 of solid materials, and it, therefore, does not apply to
23 solid materials with volumetric contamination. Also, these
24 surface contamination levels were not based on the potential
25 dose to an individual that could come in contact with the

1 release of materials, rather, they were developed primarily
2 based on detectability. In addition, both documents were
3 not established under a rulemaking process, which would be
4 conducted under the Administrative Procedures Act.
5 Another limitation of this guidance is that,
6 although surveys provide licensees with reasonable assurance
7 that elevated levels of licensed radioactive material is not
8 being released from their control, not all licensees survey
9 materials with the detection sensitivity. This can lead to
10 differences in the amounts of licensed material that is
11 released and non-uniform levels of protection.
12 One regulatory option that is available to
13 licensees is to request approval of alternate disposal
14 procedures. Under this regulation, licensees are allowed to
15 seek NRC authorization to dispose of material with low
16 levels of volumetric contamination. These requests
17 typically involve the burial of solid material on a
18 licensee's site or disposal at a nearby landfill. Examples
19 of these materials could be soil, sludge, roofing materials.
20 Licensees are required to identify and describe the waste,
21 the disposal site, the pathways of exposure and calculate
22 dose to members of the public and to workers.
23 The guideline that is typically used is that
24 annual doses should not exceed a small fraction of the
25 annual public dose limit, which is currently set at about

1 100 millirem per year.

2 And to illustrate this, I would like to discuss
3 two examples of solid material releases that will clarify
4 our current case by case approach. The first example is a
5 case of a licensee requesting approval of an alternate
6 disposal procedure involving the offsite disposal of septic
7 tank waste from a power plant.

8 In 1990, the Yankee Rowe Power Plant requested NRC
9 approval to dispose of septic tank waste which contained
10 very low levels of licensed radioactive material at a local
11 public sanitary wastewater treatment facility. The total
12 amount of radioactivity in this septic tank waste was about
13 2 microcuries, or 2 millionths of a curie, and it included
14 cobalt, cesium and manganese radionuclides. The calculated
15 dose from this disposal was about one-tenth of 1 millirem
16 year to a person exposed to the waste during transportation
17 or by burial.

18 The NRC staff coordinated this review with the
19 Massachusetts -- the Rural Massachusetts Board of Health,
20 and based on the projected radiological doses, and the
21 controls for surveying the material prior to its release,
22 this disposal request was approved.

23 A second example is a case of a license requesting
24 solid material releases during decommissioning. For nearly
25 30 years SentaChem, Incorporated in Tuxedo, New York,

1 produced radionuclides for medical, research and educational
2 uses. After radionuclide production operations stopped, the
3 licensee conducted a comprehensive characterization of the
4 residual radioactivity that remained in building structures,
5 in the materials appropriation system, laboratory equipment,
6 buried pipes and also soils. Radiological surveys and
7 process knowledge were used to document the radiological
8 status of the facility and to develop a plan for
9 dispositioning the structures and the materials.
10 During the decommissioning of this facility, solid
11 materials containing low levels of surface contamination
12 were surveyed and released for unrestricted use. The
13 criteria that were used for releasing these materials was
14 the more stringent of NRC or New York State criteria, and in
15 this case the NRC criteria was a "no detectable" policy and
16 Reg. Guide 1.86, and New York State criterion was its own
17 version of Regulatory Guide 1.86.
18 Solid materials that exceeded the site-specific
19 release criteria for unrestricted use were either disposed
20 of as radioactive waste in a licensed low level radioactive
21 waste disposal facility, or was transferred to a licensed
22 radioactive waste processing firm.
23 So, as you can see from these examples, solid
24 materials are being released in the absence of NRC
25 regulations in this area, which, in turn, raises the

1 question, how much of this material has been released so
2 far?
3 As I noted earlier, licensees are currently
4 required by our regulations to perform a radiation survey
5 and to keep records of those survey results. However, these
6 survey records are not required to be submitted to the NRC.
7 Therefore, the NRC does not track the amount of solid
8 material that is released from all of its licensees, which
9 makes it difficult, if not impossible, to estimate how much
10 solid material has been released so far.
11 The NRC does not currently track these releases
12 for several reasons. NRC inspects licensees' radiation
13 protection program and the survey records. The solid
14 material releases that are made by licensees are in
15 compliance with licensee programs, which, in turn, are
16 consistent with existing NRC regs, and the exposures that
17 are associated with the release of solid materials are
18 estimated to be low. In general, it is projected that the
19 amount of solid materials, such as metal and concrete, that
20 have been released to date are small compared to the amount
21 available in future decommissionings.
22 This graph is based on data contained in an EPA
23 report from 1997. It is a technical support document
24 entitled, "Evaluation of the Potential for Recycling of
25 Scrap Materials From Nuclear Facilities." According to the

1 EPA's estimate, the total amount of recyclable steel from
2 nuclear power plants is right about 600,000 tons. That is
3 assuming a 15 millirem per year dose level. The graph also
4 illustrates EPA's projection of when the steel may be
5 potentially released as the nuclear power plants undergo
6 decommissioning over the next 50 years.
7 It should be noted, however, that the 600,000 tons
8 of steel potentially available from nuclear power plants is
9 a very small fraction of the total amount of scrap that is
10 recycled by the steel industry. Over 50 years, the steel
11 industry could recycle hundreds of millions of tons of scrap
12 steel and, as indicated in this graph, the amount of
13 potentially available steel from the nuclear power plants
14 ranges from less than one-tenth of 1 percent to 1 percent of
15 the steel industry's annual use of scrap.
16 Currently, NRC is researching the total amount of
17 materials that could be surveyed and released under a
18 potential clearance rule at various dose levels. The amount
19 that could be released depends on the radiation dose level
20 and associated radionuclide concentrations that would be
21 established.
22 This concludes my presentation on the current
23 practice alternatives, and Frank will continue this session
24 with a discussion of other alternatives for addressing the
25 control of solid materials. Frank.

1 STINSON: We are going to move through each of the
2 slides that you have left in front of you, three more, and
3 then comments and questions and discussion following that.
4 CARDILE: The best way to discuss the alternative
5 is to use -- the various alternatives is to use this
6 diagram. To start the discussion, -- am I talking into
7 this? To start the discussion, as noted this morning,
8 materials are generated at licensed facilities, that would
9 be over here.
10 The solid materials are generated the whole range
11 of NRC licensed facilities, at reactors, at university
12 laboratories, at hospitals. These materials can be in
13 radioactive areas, for example, pipes or tanks, and plant
14 process systems, or in lab equipment, or chairs or furniture
15 at a hospital or university laboratory. The material can
16 also be in unaffected or clean areas that are unaffected by
17 contact with radiation. These might be, for example,
18 administrative offices, ventilation ducts in control
19 buildings, or site fences, which are nowhere near any of the
20 radioactive materials.
21 So the question we are addressing, we are trying
22 to address, is what should be done with these various
23 materials when it is no longer needed or is obsolete? The
24 diagram also shows that any materials leaving a facility
25 would be subject to some form of a survey. Either the

1 radioactivity level would be monitored using a detector, or
2 a decision could be made about what to do with this material
3 based on some administrative knowledge of its history, that
4 is, where it had been in the facility, what it had been used
5 for, and if it had contact with radioactivity.
6 So the question we continue to pose is, what
7 should be done with the various materials after they
8 received some survey?
9 One alternative is to establish in the regulation
10 that solid materials from areas in a licensed facility where
11 radioactive material was used or stored would not have to be
12 monitored, but would rather, based on knowledge of its
13 location in the facility, be sent for disposal at a licensed
14 low level waste site.
15 This is what we have referred to a few times today
16 as prohibition. And, basically, what that is is that
17 material goes from here to survey, based on knowledge of its
18 previous use, and then sent to licensed low level waste
19 disposal. The rationale for this alternative is that there
20 would not be release of certain solid materials, thus,
21 removing concerns associated with allowing solid materials
22 into products for public use.
23 The question open for discussion is how and
24 whether such a limitation would apply to unaffected or clean
25 areas of the facility, for example, items in the

1 administration building or site fences, or similar types of
2 materials.
3 A second alternative is to set a dose level in the
4 regulation below which materials would be surveyed and then
5 cleared for unrestricted use by the public. The rationale
6 for this alternative is that it would allow some productive
7 use to be made of these materials rather than simply
8 throwing them away. Before any material is released from
9 the licensed facility, it would be monitored to assure that
10 it met acceptable levels. Material that was above the
11 acceptable level would also find it way to low level waste.
12 Material, however, below the acceptable level
13 would no longer be subject to NRC licensing and could go to
14 any unrestricted public use. This could include a recycle
15 process and then into consumer products. It could also be
16 reused in its current form. I think someone mentioned today
17 use of trucks or bulldozers and what to do with them. Or
18 the material could simply be thrown away in a public
19 landfill rather than licensed low level disposal, assuming
20 that it met these acceptable levels.
21 None of the members of the public in this box, or
22 using the material in this area, would have an NRC license,
23 of course, not the scrap dealer using the material, not the
24 steel manufacturer, and not the end user, and not the
25 landfill operator.

1 Well, what would be an acceptable level to send
2 the material on this path? The purpose of a rulemaking
3 would be to try to set an acceptable level which could be
4 agreed upon, at which all of these members of the public
5 would be protected, including the worker handling the scrap,
6 the worker in the steel mill or concrete facility, the truck
7 driver transporting the material, the person working in
8 manufacturing, and, of course, and certainly not least, the
9 consumers of the end products.
10 The purpose of a regulation would be to ensure
11 that none of these members of the public got more than the
12 limit from the material. And as Bob Meck noted earlier
13 today, the results of the studies of the 79 potential
14 scenarios indicate that if the scrap worker is protected to
15 a level, for example, like a millirem, then a consumer would
16 get well less than that, potentially well less than that
17 level. To assure that no member of the public got more than
18 an acceptable level, the material would be monitored before
19 it left the facility.
20 A compromise between these two alternatives is
21 that shown in the middle, in which we could set a dose limit
22 in the regulation allowing some material to be surveyed and
23 released, but restricting where this material went to only
24 certain restricted uses. These restricted uses have been
25 referred to several times as authorized uses. An advantage

1 of this alternative would be that it would make some
2 productive use of the materials, but would limit uses to
3 those which were less likely to cause public exposure.
4 Now, this seems like a good idea, but we have
5 heard discussions at earlier meetings that to make this
6 alternative work, by which I mean to ensure that the
7 material only goes to the restricted use, that is that is
8 definitely goes here and not here, a question for discussion
9 is, is it necessary for NRC to license some part of the
10 process taking the material to its restricted use? And a
11 further question for discussion is, who, if anyone, in this
12 box, and along this path, taking the material to a
13 restricted use, should be licensed by NRC and whether a
14 licensing scheme would work to assure that this process was
15 followed?
16 For example, one possible restricted use of this
17 material is to use the material in an already licensed
18 facility. For example, using it as shielding blocks in a
19 nuclear facility or as shipping drums. But a question is,
20 should the people who make these shielding blocks or make
21 these shipping drums be licensed by the NRC?
22 Other possible uses of the material are in some
23 use that would normally be licensed by NRC. These could
24 include, for example, girders in a bridge, or they could
25 include another possible unlicensed use where the material

1 would be restricted to only going to a certain place, would
2 be if you said this could only go to a landfill. It would
3 not be recycled into any public consumer use.
4 Here again the question is should the people who
5 collect the scrap metal and transport it to these locations
6 be licensed by NRC and even whether the bridge owner or the
7 bridge manufacturer should be licensed by the NRC and
8 perhaps whether the person running that public landfill
9 should somehow be licensed by the NRC to assure that the
10 material wasn't scooped up out of that landfill and sent
11 back into some public use which would jump across this line
12 here, and back down in this direction.
13 Of course a bridge with girders in it only lasts
14 so long and eventually the lifetime of this restricted use
15 will end, and the material will then become available for
16 unrestricted use. Thus, what restricted use essentially
17 does is defer the ultimate decision about what should be
18 done with these materials while allowing radioactive decay
19 to occur over the lifetime of the restricted use.
20 For some radionuclides like Cobalt-60, which is a
21 prime radionuclide at power reactors and at a number of
22 university facilities, this decay could cause substantial
23 reduction in the radiation levels.
24 For example, if the Cobalt-60 levels at this point
25 are about a millirem, then after the lifetime of the

1 restricted use, perhaps 30 or 40 years, the dose level, when
2 the material left it might be less than that, probably a
3 hundredth or a thousandth of a millirem.
4 Now in earlier meetings and today people have
5 suggested other alternatives, all of which we are open to
6 and all of which we will consider. One of these
7 alternatives is recapture of the materials that have
8 previously been released. This alternative deserves to be
9 evaluated on its merit. However, it is not an option by
10 itself because it does not address what to do with the
11 materials that are over in the generated facility.
12 Another alternative that has been mentioned is the
13 use of ANSI N13.12. This is an industry standard that we
14 could discuss some more that has been developed and which
15 sets an acceptable level for release of material into an
16 unrestricted usage.
17 Another alternative that has been suggested is to
18 segregate different requirements for different material
19 types, possibly using different alternatives for different
20 materials.
21 Another alternative that has been suggested is use
22 of a dedicated licensed recycler to ensure material only
23 went to its authorized use, so you would insert a licensed
24 recycler or smelter into this process to assure the material
25 went to where you intended it to go.

1 Another alternative that has been suggested is use
2 of a specific licensed disposal facility like this.
3 However, it would be one that only handles material with
4 small amounts of radioactivity.
5 Each of these alternatives has its pluses and
6 minuses. For purposes of our efforts and for the purpose of
7 why we are here today and listing to your comments is to
8 evaluate all health and environmental impacts and economic
9 impacts and evaluate the tradeoffs between the alternatives.
10 In summary, we would like you to provide us with
11 input on the table that we are I guess going to move into
12 shortly as to what should be done with the materials at this
13 point and specifically whether it should go on this pathway,
14 on this pathway, on this pathway, and of course in
15 discussing those alternatives and what you think about them,
16 we would like your further ideas as to why you think this
17 alternative is the best approach or an approach that could
18 work. We have heard some of that already.
19 As you discuss an alternative, you don't need to
20 give, say for example an environmental and economic reason.
21 Someone else can follow that up with another rationale.
22 In addition, as we talk through those boxes about
23 different potential alternatives, the idea is not to narrow
24 in on an alternative that we all agree upon, but to put down
25 what some of the different alternatives that people think of

1 might be useful for the different materials, and we would
2 like to focus, as Barbara mentioned, on each of the
3 different materials. Thank you.
4 STINSON: Before we get into an exploration of
5 some of the alternatives, the ones up there and the other
6 ones that Frank mentioned, would it be okay if we heard just
7 a brief presentation? This will conclude all of the
8 presentations for our two days together on assuring controls
9 and some of the methodologies that NRC has in mind if they
10 pursued this. Would that be okay?
11 Dan says what is the alternative, if the answer is
12 no?
13 [Laughter.]
14 STINSON: Tony, then do you just want to cover
15 those last two slides?
16 HUFFERT: Yes. How should controls be assured
17 under various alternatives?
18 STINSON: Can you speak up just a little bit? If
19 you are not hearing an echo of yourself, you are probably
20 not being heard.
21 HUFFERT: Okay. Earlier NRC regulations require
22 licensees to make surveys of solid material to evaluate the
23 potential radiological hazard that could be present and is
24 part of the licensee's Radiation Safety Program. They
25 develop procedures for controlling solid material at their

1 facilities. This includes radiation monitoring procedures
2 to evaluate any solid materials before they could be
3 released.
4 Presently there are some issues with existing
5 survey programs at licensed facilities. Not all licensees
6 use the same survey instruments and procedures to monitor
7 materials, which can lead to variations in detection
8 sensitivities and equipment. Another issue is that existing
9 guidance on conducting surveys is geared toward the release
10 of solid material with surface contamination -- for example,
11 the use of Regulatory Guide 1.86.
12 There is not an established procedure for
13 controlling the release of solid materials containing
14 volumetric contamination.
15 There are also physical limitations for measuring
16 volumetric contamination because it is difficult to measure
17 radioactivity contained in a solid object using the typical
18 hand-held survey instruments that are used at most
19 facilities.
20 An overall consideration in controlling solid
21 materials of volumetric contamination is how to measure
22 radioactivity in the material itself and then compare the
23 results to a predetermined release level.
24 It is likely that the survey method that is chosen
25 for controlling solid materials will depend on the

1 alternative chosen for regulating these materials.
2 Currently we are considering a range of alternatives which
3 in turn requires the technical evaluation of a variety of
4 survey approaches because the alternative chosen determines
5 that survey method that should be used to control the solid
6 material release.
7 It follows that if a dose criterion is chosen that
8 is very low or zero above background, very sensitive survey
9 methods and equipment would be needed. There are associated
10 measurement costs and practicalities for each alternative.
11 Another consideration in controlling solid
12 materials is restricting the release to only certain
13 authorized use. For the restricted use alternative, what
14 other controls are needed?
15 Some of the options for restricted use have
16 already been discussed by Frank in this session or I'll
17 bring it back to you. What other options for restricted use
18 should be considered?
19 STINSON: Okay, good. Thank you. So let me kind
20 of go over the things that are on our agenda for this
21 afternoon. First, we have already heard, and let me just
22 tell you there is a giant party going on next door beginning
23 at 4 o'clock, so if you are at all bored, just feel free to
24 join Bank 1 because at 4 o'clock they are going to unleash
25 music and all kinds of stuff. We may want to strategically

1 have a break then. We are doing what we can to modify the
2 sound.
3 Two materials have already been mentioned to add
4 to the list, nickel and lead. What we want to do first is
5 see if there are -- these cards that are up probably relate
6 to questions or comments related to the presentation. Then
7 we want to be sure that we have all the right materials in
8 mind that we need to cover for the rest of this meeting and
9 begin to talk a little bit about the current methods of
10 control.
11 At that point in the meeting what we would like to
12 hear from you all are some real world experiences of some of
13 the issues, problems and ideas around the current methods of
14 control and I am sure there is a lot of good experience to
15 relate on that. You know, that takes us up to 4 o'clock and
16 at 4 o'clock we would like to -- well, what we are going to
17 do is just before 4 o'clock Cliff is going to make a short
18 presentation that he referred to earlier, some discussion,
19 ten minutes or so, on some of the history and issues he is
20 most concerned about. He can only be here today, so we will
21 give him that opportunity before the close of today, and by
22 4 o'clock talk about aluminum specifically and the
23 alternatives for control of aluminum -- what makes the most
24 sense under the potential control items and then
25 specifically look at what might be some of the health and

1 environmental impacts as well as economic impacts that would
2 be specific to that industry and move across the table, if
3 you will.
4 So everybody is going to have to speak up a lot as
5 these guys get started and we will just ask your patience
6 and tolerance about that. Tony, do you have a suggestion?
7 Can you use the microphone? I'm sorry --
8 LAMASTRA: Tony Lamastra. Could you please
9 explain what you mean by current methods of control?
10 STINSON: Sure. I mean how is the material
11 handled currently, today? You know, within NRC licensed
12 facilities what is the method of release, the criteria for
13 release? I am looking at the explanation that is written
14 here for that specific material and there may not be real
15 significant differences between the materials but for some
16 of them, there are.
17 Are there any other questions? Let's go ahead and
18 take the cards that are up regarding questions, comments, et
19 cetera, around the information that has been relayed kicking
20 off Session Number 3.
21 I think that if my notes are right Jim has been
22 waiting and Paul Genoa. Hand him that mike.
23 TURNER: Jim Turner, SMA. I think Paul just is
24 going to clarify what I say.
25 I guess the question of what are the alternatives

1 is a very good question, because I don't think, I haven't
2 seen where you have any alternatives for restricted release
3 or otherwise because you don't have -- what you need to do
4 is a market survey of some sort and see who wants this
5 material, different types of material. I haven't seen or
6 heard anybody that does want it, so that might be the first
7 step.
8 The second has to do with protocol for
9 methodology. Again I think you are maybe jumping the gun in
10 looking at a release level and should look more at the
11 method of release. Like I say, I think the protocol and the
12 release methodology used by the licensee is critical and
13 they must be uniform and consistent across different
14 entities. I don't think that the NRC or the DOE can assume
15 that those protocols or their licensees are going to follow
16 those protocols. The licensees are human, after all.
17 In particular my company in the last year has had
18 actual experience with actually two issues. We received
19 material at one of our facilities from a nuclear facility
20 and it was three loads. One or two came directly from the
21 facility and -- or one or two came through a scrap dealer.
22 They set off alarms. They were rejected and we cut off the
23 supplier.
24 Another example is more recently, during our
25 remediation efforts with the insulated material, material

1 that was sent to the disposal facility -- well, with
2 material that was sent to the disposal facility in Texas
3 they located a radioactive source. It turned out that the
4 source was put there improperly by the licensee that was
5 doing the remediation. It was taken care of, but I just
6 wanted to point out that these things can happen and I think
7 that it is premature to look for a level that can be
8 released until you find out or determine how it is going to
9 be released and to whom. That's all.
10 STINSON: With that you really hit on, you know, a
11 number of the columns for your industry in particular --
12 controls and in the cases you brought up where they have
13 failed, and the concern that you have around any
14 alternatives and what level of materials, so this is going
15 to be a little hard to sort of push into the boxes, if you
16 will, or direct in a particular direction, but at this point
17 if you don't mind let's talk a little bit about any general
18 comments that you have and hold yourself back from getting
19 into the specifics of your particular industry until we can
20 talk a little bit about current methods of control.
21 We will see if this is working. Paul? I like
22 totally confused you now.
23 GENOA: You have. I wanted to address a comment
24 on the presentation on the boxes.
25 STINSON: Good. That is what you should do now.

1 GENOA: That is what I want to do now. Okay. The
2 slide, if you could put it back up, it has the pretty
3 colors.
4 Paul Genoa, representing NEI, and I would --
5 STINSON: Just pull the mike a little bit closer.
6 It is just going to get harder and harder to hear.
7 GENOA: I would offer a recommendation that the
8 agency pursue unrestricted release at this time, that it is
9 premature to address restricted release criteria. The
10 reasoning is as follows.
11 Fundamentally, no matter how many cycles of
12 restriction you apply, and I can think of many, you
13 ultimately have to come to a decision or you have to have
14 the decision criteria in place before you allow a restricted
15 release scenario. That ultimate decision is when is this
16 material safe and acceptable for release to the public
17 without conditions.
18 If you don't have that answer in front of you, you
19 can't make reasonable decisions about how to restrict
20 release criteria.
21 Now I believe that restricted release scenarios do
22 make sense. The French are proposing a fixed-space facility
23 that will receive all of the metal from all of their
24 facilities in France, mix it with material from non-nuclear
25 facilities, and manufacture industrial springs. That works

1 in France. That is a pseudo-socialistic system.

2 We in this country cannot dictate where companies

3 send their material or how they control their material in

4 such a fashion. However, the free market does control those

5 things, and if after you set a health and safety based limit

6 that is acceptable for the unrestricted release of material,

7 if the market forces show that there is a market, then

8 someone will step forward and you could postulate a

9 fixed-space facility that might even be regulated in its

10 operation that would receive material from these facilities

11 under certain conditions and will manufacture a certain

12 product that would be used in the future, whether it is

13 industrial springs or whether it is pipes for oil and gas or

14 whatever.

15 But for you to sit back today and try to envision

16 that I believe is an impossibility. I just don't think you

17 can do it.

18 STINSON: You are saying set a level low enough to

19 end restricted release, and then work towards or understand

20 what's necessary to conduct a market for restricted release.

21 GENOA: Yes.

22 STINSON: And do a fixed-based -- explore the use

23 of a fixed-based facility. I don't want to extend your

24 comments, I just wanted to make sure we had it.

25 GENOA: I think I just said that it's premature to

1 try to do both steps at the same time. It is a sequential
2 activity. I suppose you could do it in one rulemaking, but
3 it may take forever.
4 You need to get to the first step first. And then
5 I would offer that in the United States it will be
6 impossible for you to try to try to dictate what will be
7 acceptable by the economy, by the market.
8 Rather, you set the criteria and allow the market
9 to come to you with suggestions for approval, for a
10 restricted scenario.
11 STINSON: How many people -- of the cards that are
12 up, how many people want to comment on what their favorite
13 alternative for control is?
14 Honestly, I mean, is that what your comment is
15 about? Okay, because what we're trying to do is hold you
16 back from commenting on which alternative you prefer at this
17 point, and structure it by material a little bit.
18 GENOA: My comment was basically on the
19 presentation in this section. Aren't we commenting on the
20 presentation?
21 STINSON: Right, right, but you were commenting on
22 unrestricted release versus restricted release, et cetera,
23 and I'm just wondering if this is going to be --
24 DEVGUN: That's part of the presentation. I'll
25 take my card down here. I think that on restricted release,

1 my comment is to Frank, similar or on the same basis that in
2 the first place, you're trying to -- what is it that
3 requires us to go through this exercise?
4 If I am a licensee, I'm required under 10 CFR,
5 Subpart K, to show the absence of licensed material. That's
6 what forces me to go through this route or any other route.
7 So, because of that, if you go restricted use
8 scenario, you are going to create, continue creating further
9 licenses. If you've got 20,000, you're going to have
10 50,000, 100,000, and so it's a -- I would say it's a
11 contradictory in itself.
12 What we are trying to do is actually a licensee is
13 trying to release this material because even if he had the
14 equipment, you know, you don't have the lab analysis, when
15 you're talking about 50 million pounds of concrete material.
16 You don't have the lab analysis methodology available to
17 you.
18 You're trying to process this on a bulk assay
19 system, and you cannot show the absence of licensed
20 material. That's why you need to do that in the first
21 place.
22 So if you go ahead and use the restricted use type
23 of pathway, you are going to continue on. It doesn't matter
24 where this material is used or reused, if you're going to
25 control each end use, you're going to have a whole slew of

1 licenses.

2 Before you know, everybody in the room may have a

3 license, and it doesn't matter whether you have anything to

4 do with it or not.

5 STINSON: Mike?

6 MATTIA: A quick question and a quick comment:

7 The question goes back to one that I have asked in previous

8 sessions, and that is, looking back at Reg Guide 186, can we

9 obtain an understanding of what would the levels that are

10 mentioned in 186, how do those convert to milli or micro

11 roentkins, which is the standard, at least here in the U.S.

12 that we use for measuring material?

13 And the second is a comment that goes back to the

14 fundamental of error, I think, in these presentations.

15 And to use an example, the Environmental

16 Protection Agency regulates the amount of hydrocarbons that

17 the public can be exposed to from internal combustion

18 engines, meaning automobiles.

19 That level is not zero, and the reason it's not

20 zero is because the public wouldn't tolerate removal of all

21 automobiles, even though anything above zero is hazardous.

22 If you were to ask industry and the general public

23 how much exposure to materials to be released from nuclear

24 facilities they are willing to tolerate, you may find across

25 the board, the answer is zero.

1 Understanding that, that means none of this
2 material gets released. So before you can consider making
3 any type of rulemaking, you need to work on what is
4 acceptable to the public, because right now that acceptance
5 level, almost across the board, is zero.
6 And we may even go so far as to say that
7 acceptance level also applies to non-contaminated material
8 because it's contaminated by association.
9 And let's not take the chance. So you have a
10 perception by industry and the public that you can keep the
11 stuff because nobody wants it because there has not been a
12 buy-in, there has not been an acceptance or an understanding
13 of fact, there hasn't been an agreement as to what the
14 stakeholders outside of the government are willing to
15 understand or willing to accept or willing to deal with.
16 And before that can happen, you don't have a
17 reasonable chance at a rulemaking.
18 STINSON: Peter?
19 HERNANDEZ: Peter Hernandez. In the discussion in
20 the simplified diagram of alternatives, you have the arrow
21 that contemplates going from restricted use ultimately then
22 cleared material for unrestricted use.
23 We've encouraged the NRC to take the material from
24 this contaminated material and limit it to restricted use
25 applications. Part of the reason for that recommendation --

1 and we really didn't contemplate it going into free release.
2 The magic of recycling is that the material
3 objects going in to be recycled completely lose their
4 identity, and so a steel plate, a bridge girder, a pipeline,
5 can become a car, an appliance, the steel frame in the chair
6 you're sitting in, a child's toy.
7 CARDILE: Can you clarify the question? All this
8 chart is trying to say is that you can develop a restricted
9 use, you can put this material into a bridge.
10 Eventually, presumably, the bridge comes down.
11 Now, two things will happen: If it's Cobalt 60, you will
12 have 30-40 -- I don't know how long the bridge will last --
13 years of decay.
14 The material will go very low. In addition to
15 that, as you say, the material can go anywhere at that time,
16 and that's the point of the slide, is that once the material
17 comes down, especially if this is an unlicensed bridge, we
18 don't know where it's going, but nevertheless, as you point
19 out, between decay and between mixing, any further exposure
20 will be very, very low.
21 So, I'm not sure what the question was, or if
22 there was a question.
23 HERNANDEZ: My point was that a suggested
24 alternative would be not to permit material that is
25 restricted use, to be ever rereleased, because not

1 everything is going to be contaminated only with Cobalt-60.
2 You may have contamination from Plutonium or some other
3 material that have extremely long half lives.
4 CARDILE: And that's a good point, and what you're
5 advocating or what you're talking about perhaps is a
6 licensed form of the material, because if it was in some
7 unlicensed form, some unlicensed use, then NRC unlicensed
8 means NRC is out of the ball game.
9 And if it's an unlicensed bridge, NRC only knows
10 that it went to the bridge to made and that's it. We're
11 done. NRC is done with that material.
12 Once 30, 40 years later, somebody tears that
13 bridge down, what happens to it later, especially, as you
14 say, if it's a long-lived nuclide, if that's where it was,
15 then it can go anywhere.
16 So perhaps what you're talking about is some
17 licensed use where, as you say, especially for long-lived
18 material, it never goes out of licensed use. This perhaps
19 might be different than something with short-lived nuclides
20 that, you know, perhaps would decay away.
21 So you're perhaps talking about combining two
22 different types of alternatives here.
23 HERNANDEZ: That's correct. Again, I understand
24 that your diagram is a simplified diagram and doesn't
25 necessarily reflect all the options that you're considering.

1 I just wanted to make that point.

2 CARDILE: Okay.

3 STINSON: Kristin, did you still want to speak?

4 ERICKSON: The first one, I want to comment again

5 on the diagram. I think that what you've done by putting

6 the restricted concept in there, you have completely muddied

7 the issue.

8 What we're trying to achieve here is a limit

9 beneath we say it's safe, it's not governed, regulated,

10 monitored, surveyed, the risk is not there anymore in any

11 substantive form, and that we have lots of science and good

12 communications to show that.

13 And then you don't have this continuing licensing,

14 because that's not unrestricted. The other comment has to

15 do with the commenting and the working on the public, and

16 communication with the public and public acceptance.

17 Being in this business every day, and dealing with

18 people from every walk of life, every culture all over the

19 world, I run into people, of course, who have, just you name

20 the word, radiation, the outrage factor is monstrous.

21 That's what we're talking about here, outrage factor.

22 There is a whole profession that works on

23 communicating risk, all kinds of risk, including radiation

24 being one of them. It can happen, it does happen, and it

25 could with this also, that people communicate with the

1 public about this risk in such a way that they not only
2 understand it, but they accept it.
3 And, in fact, they do. Everyone accepts that my
4 t.v. may give me some small amount of ionizing radiation. I
5 may receive two or three or five millirem flying across the
6 country on a jet.
7 I may receive some dose from the background, and,
8 in fact, why did they deregulate graveyards, cemeteries,
9 crematoria? They had to because the amounts in our bodies
10 are above the limits.
11 Now, if you communicate in these kinds of ways
12 about plain, everyday things such as eating a banana with
13 Potassium-40 gives you as much dose as some things we
14 release, a handful of Brazil Nuts can give you your public
15 dose limit in one handful, those are the kinds of things you
16 can do to communicate with the public.
17 And that's what needs to be done. You look at the
18 perception, the public perception has to be at least half of
19 the effort here if this is to be achieved. A well-done
20 campaign, a well-done communication, well-done assessments,
21 well-disseminated information, that's what needs to happen.
22 STINSON: Craig, and the Dan Guttman.
23 CONKLIN: I had a question about the chart in
24 relationship to the NUREG document here. The restricted use
25 scenario or line there, was that modeled in the NUREG here?

1 Were there any dose assessments done or economic assessments
2 done for that particular one?
3 CARDILE: The NUREG did not do economic
4 assessments, and I don't believe that the NUREG looked at
5 restricted uses. The NUREG focused on unrestricted uses,
6 various unrestricted scenarios.
7 The NUREG focused on this box here, recycle,
8 reuse, and landfill.
9 CONKLIN: Do you have any plans for doing a
10 similar type analysis for the green box?
11 CARDILE: Well, if we proceeded to do that type of
12 regulation, we would have to.
13 CONKLIN: I will just make one last comment. It
14 would appear that if you're going to go with any sort of
15 restricted use, whether it ended up with licensed or
16 unlicensed types of activity, would have a pretty
17 significant regulatory role at the federal and state levels.
18 And that would have an economic impact and a cost
19 to it that would need to be really analyzed closely. If
20 you're going to do a cost/benefit, it's not only to the end
21 users and the suppliers, but it's also going to be to the
22 state and local governments and the Federal Government that
23 are going to have to implement it.
24 CARDILE: All right. I was just going to say that
25 I hear a couple of the participants talking about moving

1 towards an unrestricted scenario or an unrestricted
2 alternative, and trying to develop what is an acceptable
3 level. That is the type of thing we talked about in the
4 presentations. We also hear Mr. Mattia talking about that
5 the public will only accept zero.
6 I guess that presents a real conflict and two
7 difficult things that don't seem to want to mesh. I guess
8 the question I would ask Mr. Mattia is, in listening to what
9 other people are saying and in talking about the types of
10 dose levels that we're potentially considering, like one
11 millirem, which is, as is mentioned here, is a fraction of
12 what you would get in flying back and forth across the
13 United States, or a fraction of what -- a small fraction of
14 the difference between the dose that a person in Colorado
15 gets, for example, compared to the person at sea level.
16 What is the -- and as someone else mentioned, what
17 the National Council on Radiation Protection calls a trivial
18 or negligible dose. What is the science or perception that
19 needs to be developed to get away from -- not get away from,
20 but to discuss that in public perception?
21 STINSON: Steve was in the queue. I'm sorry, Dan,
22 I will ask you -- I apologize for skipping over you.
23 But, Mike, do you want to respond to the question?
24 MATTIA: Yeah. Not only would I like to respond
25 to that, but to your assertion, and you raise some valid

1 issues. I think that when we look at the consuming public,
2 we are looking at a perception of risk versus benefit and
3 risk versus alternative. You know, the risk of getting an
4 X-ray is there, but the alternative is you don't get your
5 broken leg set. The risk of flying in an airplane is you
6 get exposure, but the alternative is you walk.
7 The problem with this material is the risk is
8 exposure, and what is the alternative? Well, the
9 alternative to the public would be you don't release it.
10 What is the benefit to the general public if you release
11 this material for reuse? Do we get cheaper products? Does
12 our life improve? Does the recycling industry benefit? Do
13 we get cheaper cars or better bridges?
14 That is the problem. You have a public that says
15 I will accept a risk if there is an alternate benefit. If I
16 have --
17 CARDILE: I am sorry, go ahead.
18 MATTIA: The question is, if you cannot provide an
19 alternative benefit, if the public is willing to do without
20 to eliminate the risk, to make it zero, then you have to
21 start at square one to be able to get public acceptance of
22 what they will accept, in what parameter, before you can
23 release it. No one is going to turn down an X-ray or a
24 cross-continental flight, or even chemo radiation, given the
25 alternatives.

1 But if the benefit for us is nothing over and
2 above what I am getting now, and the risk is additional
3 radiation, you are going to have the public saying, where is
4 my benefit? I would just as soon take zero exposure
5 additional there, because I am not getting anything for it.
6 CARDILE: Perhaps we could ask the generators, the
7 utilities, the nuclear industry representatives to elaborate
8 on that benefit. I have heard some of that elaboration
9 being, well, if the material goes here rather than there,
10 then, you know, the cost of a product, the cost of -- I
11 think at the last public meeting, one of the gentlemen
12 talked about the cost of medical procedures being higher
13 because it cost more to dispose of the waste here versus
14 there. So it is not that there is no benefit, it is just
15 that perhaps it is harder to see.
16 Obviously, you know, the public may not see that,
17 oh, I am getting a benefit from this piece of stuff. On the
18 other hand, what we heard at the last meeting, or perhaps
19 some of the utility or medical people can expand upon, is
20 what this impact is on their cost of doing business, which
21 cost is then passed on to the public.
22 STINSON: Let's continue on this particular vein,
23 because I saw a few kind of heads nodding and people curious
24 about this issue perhaps having some comments. Steve, did
25 you have something on this?

1 COLLINS: Yes. With regard to the restricted use
2 category, I am one of the people a few months ago that
3 suggested to NRC that that should be one of the items to be
4 discussed, not in any way because I am in favor of it
5 necessarily, but because we needed all this input and
6 comment to know what problems it might create and that sort
7 of thing.
8 One possible restricted use that could be made of
9 some stuff that certainly you would accept maybe a higher
10 contamination level than for a lot of other uses would be
11 for construction of a high level waste disposal facility and
12 the waste containers that would go into such a facility, as
13 well as a WIPP site. I mean you are planning to put stuff
14 there forever and leave it. Why shouldn't you use
15 contaminated materials to build the waste containers? You
16 wouldn't care how much radioactivity was fixed in those as
17 long as it didn't cause an exposure concern for the workers
18 handling those containers or transporting them, and so the
19 level could be low enough so there is no exposure concern
20 from that, but still use the material.
21 Even though I am a regulator, I do not have a
22 trust -- faith, if you want to call it that, in some of the
23 institutional controls I have seen in the past with regard
24 to restricted use. So, in that sense, I am pretty much
25 against what we would call most of the restricted use,

1 because I don't believe that it can be controlled. Like the
2 steel people said, once it gets to that first user, it is
3 gone, no one is going to be able to track it after that, and
4 not even for what happens to it in that first user's
5 facility.
6 So, those are -- that is two of the things, but I
7 am glad that we are getting all the input on it.
8 CARDILE: You are leaning more towards a licensed
9 type of restricted use, where the material never leaves a
10 licensed use, is that what you are saying?
11 COLLINS: I am sorry, the background noise
12 level --
13 CARDILE: So you are leaning towards a licensed
14 type of restricted use, where the material never leaves a
15 licensed environment?
16 COLLINS: It would either be a licensed type use
17 or it would be a container that, even though the container
18 was not licensed itself, all of the people that use it would
19 be. It would be a specially designed container only for one
20 use and no one else would use it. All the users would be
21 licensed, you know, like waste containers, they have a
22 certificate of compliance from NRC. The container itself it
23 not licensed, but all of the users of it would be. Does
24 that answer your question?
25 CARDILE: Yes.

1 COLLINS: Okay.

2 STINSON: I know it is only getting harder and
3 harder to hear. We are going to have this noise level until
4 4:00, when it is going to get louder. Anybody who would
5 like to sign my petition for getting a refund on this room?
6 Let's try to keep going if we can and we will
7 still plan to give Cliff an opportunity, 10 minutes or so,
8 and take our break well before 4:00, and maybe we will miss
9 the big noise in here.
10 Anybody else have a comment on this risk versus
11 benefit, versus what alternatives are there? Okay. We have
12 got four hands up. Dan, you were next in the queue.
13 GUTTMAN: Yeah. I would like to pick up on what I
14 thought Paul said, which I thought was quite elegant. He
15 gave us -- obviously, he will tell me whether I misconstrued
16 him -- a thought experiment. What he is saying is in the
17 real world we know none of this stuff is going to be
18 restricted forever, it is all going to end up --
19 STINSON: Pull the mike a little closer, we really
20 can't hear you.
21 GUTTMAN: Dan Guttman. It is all going to end up
22 somehow, out there somewhere, and the ultimate question is
23 how the market will adjust, and that is an elegant way of
24 looking at it. And let me just play that through.
25 What is different about the situation we are

1 talking about here than, you know, bedspring sales or, you
2 know, hula-hoops, is, one, there is a special feedback
3 problem of several sorts, which also addresses what Kristen
4 has pointed out. We are talking about substances whose
5 affect is (a) latent and (b) long-term latent. You don't
6 get cancer till 30 or 40 years, and (b) it isn't directly
7 traceable. You get cancer, who knows what it is from?
8 So, to respond pretty bluntly to the science folks
9 here who say, what is the big deal, it is no problem, I
10 agree with you. I have been tutored by the country's
11 leading nuclear medicine people. They, some of them say,
12 those people who were injected, the American citizens, in
13 secret, with plutonium, it was no big technical deal.
14 Two problems, nobody told them they were injected
15 with plutonium and, therefore, we had to pay them, as a
16 country, money and the President of the United States had to
17 personally apologize. Two, it turns out, as Cliff knows
18 well, some of those moms who in their childbirth stages were
19 given, quote, "tracer amounts" of radioisotopic iron, which
20 technically, according to standards were "no big deal," it
21 turns out that 20 or 30 years later, a couple of them get
22 cancer, or their kids get cancer, and we can't find out who
23 those folks are.
24 Those are instances where there were actual people
25 with name tags, experimental subjects, workers. Secretary

1 Richardson says we have no idea how much they were exposed
2 to. We don't --
3 STINSON: Get to your point, Dan.
4 GUTTMAN: So the first point is, what do you all
5 think the feedback mechanism is going to be if you are
6 thinking about a rule? The second related point is we have
7 the liability concern. Who is going to be stuck, when that
8 mom has a child who gets cancer, on the other end of the
9 litigation? What is unique about the industry we are
10 talking about, as opposed to the steel industry, or any
11 legitimate industry in this country, including tobacco, is
12 the Department of Energy can't get sued. And those people
13 who are under it in the nuclear biz have Price Anderson. To
14 follow through, I assume, in your rulemaking, if you are
15 thinking of one, you are going to think about feedback and
16 who is going to have the liability at the other end.
17 And when you begin to think about it, the third
18 thing that comes immediately to mind, from Paul's elegant
19 thought experiment, is, gee, when the public sees that the
20 people who are thinking about it have a grotesque conflict
21 of interest, I would like formally to add to the letter that
22 we made about conflict of interest, and punctuate it, it
23 isn't BNFL that is the only problem, we now find out that
24 the real driver here may be the Department of Energy. The
25 only publicly stated promoter in this proceeding of

1 recycling is SAIC, I am told tens of millions under untold
2 contracts, and probably didn't even go tell its sister
3 agency, you have got our man, or our guy, or our girl
4 hustling this advice.
5 So the question is, where is it in all of your
6 studies and analysis on the risk analysis? You are looking
7 at the feedback mechanism.
8 STINSON: Right. I think we got the three, and
9 the liability.
10 GUTTMAN: Legal liability, and you are looking at
11 20 years from now people are going to say, well, it was just
12 Mr. Lilly and SAIC promoting it, and they were in bed with
13 the NRC.
14 STINSON: Okay. Who else just raised their hands?
15 Susan, Cindy. Okay. Cindy, why don't you go, and then
16 Susan and then Paul.
17 CARDWELL: Cindy Cardwell, State of Texas. And
18 speaking as a regulator now, I just want to reiterate what
19 Kristen had said earlier, and both -- Mike had mentioned the
20 same thing, too. And it is on the issue of restricted use
21 again, and the benefit perception -- perceived benefit with
22 that. I agree, as a regulator, it has muddied the waters,
23 to the extent that in the State of Texas we are right now
24 proposing our decommissioning rules and are not proposing
25 the alternative for restricted release or whatever it is

1 with the institutional controls. That is because we don't
2 trust the institutional controls.
3 An analogy that Steve pointed out just this
4 morning is the GL devices. Those are out there as GL
5 devices, supposedly being controlled by institutional
6 controls. That has failed. And we have a committee --
7 CRCPD has a committee right now working on it. Several
8 point around here are involved on it, trying to somehow fix
9 that problem.
10 Therefore, as a regulator, we don't trust that
11 issue. And one of the reasons why is, as one of the people
12 who has to develop our rules, I can't really attach a cost
13 to the benefit because I don't see the benefit, as Mike
14 pointed out. There is that alternative, we can do this, but
15 what is the alternative? The alternative is unrestricted
16 use. That is what people have bought into over the years.
17 It is either licensed or it is unrestricted.
18 STINSON: Or they haven't bought into unrestricted
19 release.
20 CARDWELL: Have not bought into the restricted
21 release.
22 STINSON: But I get your point. Susan, and then I
23 think Kristen and Paul.
24 LANDAHL: Susan Landahl, ComEd. In response to
25 the question about the benefits from, you know, that the

1 upside, if you will, of going with unrestricted release,
2 there is no doubt that there is a money savings, and there
3 is a money savings to the nuclear power plants because they
4 don't have to pay to survey to the same level of extent. We
5 don't have to pay to dispose of the waste.
6 But that is not my platform. My issue is that
7 there are millions and millions of pounds of material going
8 to rad waste disposal facilities right now that has minimal
9 risk and, as a result, on the other end, there is an
10 environmental impact because we have to recreate more steel,
11 more plastic, more chemicals, to take the place of that
12 material, which, in my mind, is completely useable, and that
13 is the upside. That is the benefit that I see to going to
14 an unrestricted released. Thanks.
15 THICKMAN: There is a low level radwaste facility
16 but the issue here in terms of benefit, as Mike was trying
17 to say, is the fact that there is no societal risk
18 essentially in material that has this low a level of
19 radiation. If there is no societal risk, then the societal
20 benefit for recycling this material is essentially the same
21 as the societal benefit for recycling any material, right?
22 So if the recycling system itself has a societal benefit,
23 then this would share in it, and that is the point that we
24 are trying to make here is that we ought to be able to put
25 our material into the same process with the societal gain

1 that everybody else is using.

2 STINSON: Kristin?

3 ERICKSON: Kristin Erickson, Michigan State

4 University, and I want to address the benefits from a

5 completely different angle than anyone has here, maybe

6 because what we do is different, being a research and

7 educational, biological research and development

8 institution.

9 I am going to name some benefits that none of you

10 have heard of, and which are falling away and being lost

11 because of the over-regulation, the cost of regulation, the

12 cost of disposal. We are seeing businesses, researchers,

13 uses, all kinds of things, stopping because of this kind of

14 problem and that is my interest. It is not money.

15 Our waste program only costs us $20,000 a year at

16 Michigan State. That is because we decay in storage. We do

17 everything we can ourself down to nothing, and it is a good

18 program, so it is not money.

19 Think of pharmacology and toxicology. What do

20 they do? They develop new drugs for the benefit of people.

21 What does civil environmental engineering do? They develop

22 and they have done and in fact we just finished a project

23 using bio-remediation for destruction of methanol in an

24 isotope, which made it a safe waste when previously it was a

25 mixed radioactive waste which couldn't be disposed.

1 They also develop biological organisms that go and
2 clean up your monster oil spills. That is being done now
3 all over the world due to that kind of technology and we are
4 a leader in that.
5 How about the medical cyclotrons? How many of you
6 know of those? Those were developed at our institution.
7 They are now built and used all over the world to treat
8 cancer. We all know all of the other medical uses.
9 How about biochemistry? Finding the genes that
10 cause Alzheimer's, and I could on with a whole list of
11 things.
12 How about plant biology, botany, pesticide
13 research? I could go on and on and on with this list of
14 departments -- microbiology, virology. We have about 70
15 departments at our university which utilize radioisotopes in
16 peaceful ways in research.
17 Now what about the students? Over 70 percent of
18 the degrees we confer, both undergraduate and graduate,
19 entail some use of radiation to get that degree. Either
20 they are using directly or collaborating with someone who
21 does. These are our future people. There is no dollar
22 value you can put on that. If we lose people, if we lose
23 research, if we lose students who will not come to our
24 university to get the degree because we can't do the
25 technique, and I have begun to see some of this.

1 If we make it so difficult for them to dispose of
2 their waste or do their research due to regulations or
3 whatever have you, it impacts and it spreads fast. It only
4 takes one angry PI hopping around the department, kind of,
5 you know, swearing and yipping about the zealous regulators,
6 which they consider me -- that affects. It affects now and,
7 worst of all, it affects the long-term future. This is our
8 future.
9 I have difficulty right now because we have high
10 school students who come from all over the nation doing a
11 national program in the summer, and they do real science in
12 real labs. They use a little radiation sometimes or
13 chemicals. We have to go through massive training, massive
14 parental consents. There are so many ways that it impacts
15 that no one really sees directly when we sit in a meeting
16 like this.
17 You can't put a dollar value on that. It is
18 monstrous the cost -- to lose any of those researchers, any
19 of those research applications, any of that future science,
20 much less our students and our future citizens of the world
21 today. With the problems they will encounter, it is going to
22 make our life look like duck soup in comparison -- easy --
23 and we have to remember that aspect.
24 STINSON: Thank you. Bill, you have been
25 waiting -- if you don't mind -- Paul.

1 LIPTON: You have been talking about a restricted
2 alternative involving staying within the licensing system.
3 I am a little confused because why do we need rulemaking on
4 that? That is already allowed. I mean if I want to
5 transfer something to another licensee, that is allowed
6 right now so I am not sure why that is a rulemaking
7 alternative.
8 STINSON: Frank, you have an immediate thought on
9 that?
10 CARDILE: That is a very good point.
11 [Laughter.]
12 STINSON: Paul?
13 GENOA: Paul Genoa, representing the Nuclear
14 Energy Institute.
15 I want to take just a minute to acknowledge that
16 we haven't done the job we need to do in talking about
17 benefits and I wish I had Kathleen on our staff, but let me
18 give you some comments that we will submit in writing to the
19 NRC.
20 Nuclear technologies provide significant economic
21 and employment benefits for the United States. An economic
22 study conducted in 1995 by the Management Information
23 Services, Incorporated, found that these benefits nationally
24 produced 4.4 million jobs, 421 billion dollars in sales,
25 gross national product, and 79 billion dollars in tax

1 revenues to Federal, State and local governments.

2 In addition to these significant economic

3 benefits, nuclear energy provides 20 percent of our

4 electricity without producing SOX, NOX or carbon dioxide and

5 other chemical compounds that could contribute to acid rain,

6 ozone, haze, greenhouse effects, and other current

7 environmental concerns.

8 On a more personal note, medical diagnosis and

9 treatment using radioactive materials is used annually to

10 help 10 million Americans. Researchers also use radioactive

11 materials to find cures for debilitating diseases such as

12 AIDS and cancer. This is factual. These are the

13 significant benefits that our society gains from the use of

14 these technologies.

15 I recognize that there is a perception gap. We

16 need to do a better job, but fundamentally avoiding an

17 appropriate regulatory response or taking the wrong

18 regulatory response doesn't help address the concerns.

19 Fundamentally we can survive with the status quo, but if you

20 establish a regulatory regime that is more restricted,

21 significant portions of these benefits will be lost.

22 STINSON: Mike, we will give you a chance to add

23 to that and then, Cliff, if you are ready we will turn to

24 you.

25 MATTIA: Again -- and the reason why I argue the

1 way I do is because we are an industry. We are an industry
2 that, much like the steel industry, has to sell its
3 materials, and there is no argument, there is no argument at
4 all that the nuclear industry has provided a great deal of
5 benefit and service. There is no question on that to
6 anyone.
7 Again, look at the public perception. Nuclear
8 industry -- you have done a great service. You have
9 provided us power. Now the question is you want to do what
10 with your contaminated material? No, we really don't
11 want -- thanks for the power, but we don't want the
12 radioactive material coming out into commerce because you
13 provided us the power. The power wasn't radioactive when
14 you gave it to us, but the scrap material that you want to
15 release is and the consumer is thinking I don't want it. If
16 I wanted radioactive material I would go buy it, but I don't
17 want it if I don't have to have it.
18 The same applies to any industry, whether it is
19 university or whether it is medical. The benefits there are
20 tremendous, but again the general public would ask do I want
21 something that I don't need, that I am not asking for,
22 meaning radioactive material, regardless of how low level.
23 If you never released an ounce of radioactive material from
24 a power facility, who would it hurt? You could indirectly
25 say that the consumer would be hurt, but the consumer

1 doesn't see that. He has gotten the benefit. You have to
2 dismantle and, quite honestly, what the general public is
3 going to say -- "that's your problem" -- we have probably
4 paid for the power facilities to begin with.
5 Same thing with waste that is from a research
6 facility or material. You want to dispose of it? Fine.
7 You want to sit on it? That's fine. You want to put it out
8 for general use? That is not fine, because the public would
9 feel what benefit am I getting from adding that amount of
10 radioactive material to my environment when the alternative
11 is "don't."
12 I am not necessarily arguing that that is a valid
13 perception, but that is a perception, and for those of us in
14 industry who are being looked to to take material, whether
15 primarily a metal, and to use it to recycle into another
16 product, we have to look at our consumer in the eye and say
17 it's okay, you can take this little bit of additional
18 radioactive material and use it, and the consumer will
19 inevitably say "But if I don't want it, I don't want it and
20 can you not put it in there?"
21 That is what we have had to face. An auto
22 industry would say I don't care how many nanoroentgens are
23 in there. If someone gets out and says, hey, you know, Ford
24 made a bunch of Tauruses from radioactive materials, Ford
25 Taurus's sales will go right into the toilet and Ford will

1 stop buying from that steel mill, who will stop buying from
2 that scrapyard. That is public perception which is a
3 reality and if we don't address that upfront then the
4 material that wants to be released ain't gonna go anywhere.
5 I would venture one more comment is that the
6 material -- yes, I know material has been released, and it
7 is being released under Reg Guide 1.86, which is still
8 potentially able of setting off a detector, which answers
9 the question for the last few years why all this radioactive
10 metal has been showing up in scrapyards that has nothing to
11 do with the source. It is all this stuff being released
12 under Reg Guide 1.86.
13 Again, the question is it is out there but it is
14 not wanted because the perception is if it sets off the
15 detector, if it has a radioactive designation, it is deemed
16 as hazardous, as dangerous, and we have to address that
17 first because unless you want to put it all into a landfill,
18 you have to accept that the steelmakers and the recyclers
19 and the consumers need to be able to tell you what they are
20 tolerant with, what they will accept, how they will accept
21 it, and who will accept it.
22 STINSON: Thank you.
23 MATTIA: And then you can have a rulemaking as to
24 how to get it into that form.
25 STINSON: Okay. Do you have just quick comments?

1 Charles and Steve, Cindy. Do you have just quick comments?
2 Charles, go ahead.
3 WILK: It's basically a question. Doesn't the
4 permit or the license granted by the NRC include a closure
5 plan and don't those closure plans include financial
6 assurance that should cover the disposal costs of this
7 material?
8 STINSON: Go ahead, Tony.
9 HUFFERT: I'll try to answer your question. What
10 you are talking about is decommissioning and I think what we
11 are talking about is something a little bit different.
12 This proposal would not necessarily be limited to
13 decommissioning. It would be included with normal
14 operations.
15 STINSON: The release of material would be
16 included with normal operations, not just decommissioning.
17 What you are talking about, those kind of parameters I guess
18 are spelled out in decommissioning or licensees under
19 decommissioning.
20 HUFFERT: 10 CFR, Part 20.
21 WILK: So the license is never -- did not cover
22 financial assurance for disposal of normal production, waste
23 from normal production.
24 STINSON: In the interim --
25 HUFFERT: It is my understanding the answer is no.

1 STINSON: Okay. Steve?

2 COLLINS: Steve Collins of the State of Illinois
3 and the CRCPD.

4 The actual evidence from the states responding to
5 the monitor trips is that most all of those responses are
6 not the result of releases under Reg Guide 1.86 criteria.
7 There are a few, but across the nation about half of those
8 are due to naturally occurring radioactive materials that
9 are and always have been totally unregulated.

10 Another one of the high percentages comes from
11 those generally licensed devices where institutional
12 controls have broken down. Whoever the general licensee is
13 did not keep track of it the way they were supposed to, and
14 send it back to the manufacturer for disposal. Basically
15 all they had to do was keep track of it and when you are
16 through with it, send it back, but their controls did not
17 work and so it shows up at a scrap dealer. That's the
18 majority, not Reg Guide 1.86 releases.

19 STINSON: Thanks for the clarification.

20 CARDILE: Could I just follow up? I just want to
21 clarify one thing. We talked a little bit, and I don't know
22 the gentleman's name, but we mentioned about the restricted
23 use, the license restricted use, that maybe you should just
24 take it off the table as far as any rulemaking.

25 I guess before we take it off we want to at least

1 think about and make sure we are doing the right thing,
2 because I guess you mentioned about transferring material
3 within the license and that is already okay, and so there's
4 no need for rulemaking, but as we talked about earlier, the
5 material we are talking about is potentially a tank or a
6 pipe or some piece of equipment. If what you are talking
7 about at this end for restricted use is a drum or a shield
8 block, well some process has to take that material and
9 convert it from the tank to the shield block or the drum,
10 and I guess the question I would have is is that process
11 licensed? Does it need to be licensed? How would we get
12 the material from here to here?
13 LIPTON: There are licensed facilities that do
14 that.
15 CARDILE: I was just going to say -- you may talk
16 later or even in your comments you could present us with
17 some more comments about that --
18 LIPTON: Ever hear of Metal Note -- I mean --
19 CARDILE: Excuse me?
20 LIPTON: There are licensed facilities that do
21 that. I mean it stays within the licensing system. I mean
22 I don't want you messing with that.
23 CARDILE: Okay.
24 STINSON: That was Bill Lipton -- for our
25 transcriber. Cliff Honnicker. We are ready for your --

1 sorry to ask you to scream but that is basically --

2 HONNICKER: We are at 4 o'clock in the afternoon.

3 Right behind us there is a party and it is not the best of

4 times but it is not the worst of times either, and I am

5 really grateful that you invited me to come.

6 I have been exposed to this nuclear issue since

7 about 1973 when my mom first got involved in dealing with

8 this issue and I don't have time to get into the whole

9 history of it, but I wanted to bring this -- discovered in

10 my mom's old files -- a 1980 letter that she wrote to the

11 NRC that was dealing with this issue, this same area of

12 rulemaking is shall we release this material into the open

13 market and what is the environmental impact and what is the

14 human impact of all that?

15 So I wanted to share with everybody here at the

16 table a copy of that letter and you can even maybe get a

17 chuckle or two, a little bit of deja vu, and a little bit of

18 the industry response to well how would we deal with

19 increased cancers, for instance.

20 Also, I want you to look in that letter and note

21 that it was discovered that there were 5,000 public comments

22 to this issue in 1980. My mother made a FOIA for NRC to

23 provide her those comments and to provide her the responses

24 that NRC made to those comments and that was never provided,

25 so the interpretation of that is that the NRC made no

1 comment to those responses, but the endpoint was that the
2 NRC denied in 1980 the ability to freely circulate this into
3 the economy.
4 As I understand it, over the last 18 years there's
5 been five attempts to circulate this into the economy,
6 circulate new rulemaking and each time it has been turned
7 down, so one suggestion that I would make would be that next
8 time that you try this, and I have a suspicion, I mean I
9 just have this kind of itchy feeling in the back of my neck
10 that it is going to be rejected this time around -- I just
11 have that feeling, so maybe 20 years from now when you try
12 it again that you compose a historical record of the
13 scientific studies that were done -- this SAIC piece that
14 was done, this piece earlier in 1980 that was done, all the
15 scientific record that was done, and to have that as the
16 institutional memory.
17 It is like your fellow over here at EPA had no
18 institutional memory of the earlier EPA positions, so that
19 might actually save time and money and bring a scientific
20 history to the whole issue and at the same time include the
21 public's comments, the public reaction, the public response,
22 so that you have a full picture of what is going on with all
23 of this, okay? So that is the first thing that I am going
24 to hand around.
25 The second thing I am going to hand around is the

1 letter from the EPA from 1980 that voiced the position of
2 why the EPA took a stand against this. I think that the
3 position that they took is remarkably similar to the
4 gentleman in the metal recycling industry. It is just very
5 calm, very straightforward -- here is the pragmatic problems
6 that we face in dealing with this. It is not the full
7 letter because I didn't, I didn't have enough time to copy
8 their full page by page response to the EPA thing and that
9 is where the ALARA comment came in, but I can get a full
10 copy to you guys later, and then you all can distribute it
11 as part of the public record.
12 Finally what I want to pass on is that my own
13 participation -- we take full circle. The son steps in
14 where the mom 20 years earlier was dealing with this issue.
15 And I was, I've been involved in dealing with affected
16 nuclear workers at the K25 site who'd moving thousands of
17 drums of substance.
18 Okay, I'm not even gonna get into the issue of what they
19 were moving. It may have been nickel; it may have been
20 lithium; it may have been other materials. But the whole
21 thing is sort of clouded in classification issues, and I
22 just don't want to go there in this meeting. And I don't
23 want to go where that material went, because some of it went
24 off-site after hours, unmarked, etc., etc., etc. I don't
25 want to go there. But that's one of the perception problems

1 that we're, we're gonna have to deal with all of this is the
2 past record of, of the Department of Energy and its
3 credibility problems.
4 The Nuclear Regulatory Commission -- these people
5 down here have been incredibly polite, I thought, in not
6 pointing out that the proof of the pudding is in the
7 practice. And the proof of the pudding for the metal
8 recycling industry is that the Nuclear Regulatory Commission
9 historically has had to regulate license control nuclear
10 material out there in the form of these medical source
11 materials.
12 But you failed -- obviously, utterly, you have
13 failed because it keeps winding up in their cauldrons. And
14 it keeps costing them millions and millions and millions of
15 dollars to replace cauldrons, to have these facilities
16 cleaned up, to have workers' lost hours, lost wages.
17 So the proof of your ability to regulate this material, to
18 oversee it, to have compliance, to have radioactive police
19 making sure that it's done 100 percent effective is not
20 proven in their mind. I think that that was an unstated
21 assumption today, and I think that it needs to be stated,
22 that the NRC has failed in that. And so it's not perception
23 that is the problem; it's the proof of the practice, is in
24 what you've done in the past.
25 And as far as the Department of Energy, the third thing that

1 I'm gonna be passing along deals with the, my request for
2 information regarding the recycling of radioactive material
3 that is in part based on a billion dollar lawsuit that was
4 filed at Paducah.
5 And that keytam suit, it was alleged on page 40, I
6 believe it was, that radioactive metals -- particularly
7 nickel, aluminum, uh, other materials -- were being melted,
8 recycled, sent out the door. Right now -- 1999 -- with no
9 regulatory oversight. That was in a lawsuit filed in July.
10 Okay?
11 Now we had heard from workers that this was going on. We
12 have heard now from a lawsuit and we have heard from other
13 sources in Paducah and Oak Ridge that that was going on.
14 I wrote Chip Cameron on October 7th. And I'm
15 gonna give you a copy of that letter, okay, that asks what,
16 here's the scenario. This is what's happened, a rogue
17 contractor, if you want to call it that, is taking
18 radioactive material; they're melting it; it's not being
19 decontaminated. It's being sent off-site; it's being sold
20 to an intermediary. The intermediary disguises the identity
21 of that material and then it's sold to commercial people.
22 I said, who is the, who are the people that I need to go to
23 at the NRC or the DOE to report this? What are the laws
24 that are broken? Who is responsible for the wrongdoing?
25 Who goes to jail if it's proven that this has happened? And

1 what recourse do the people who have bought that radioactive
2 metal, what recourse do they have once that's been
3 discovered?
4 Now, I sent that October 7th. And I also said, who the heck
5 are these people who wrote this dadgum thing called NUREG
6 1640? Because I can't make heads or tails out of it. I
7 want to see what orders they were given in writing this
8 thing. And I wrote that October 7th, and I sent it
9 confirmation of delivery, to make sure it got there. It got
10 there. Cameron got it. He said he gave it to DOE people.
11 I don't know if that was Dan Swede or Judson Lilly. But I
12 would like to know who from the DOE got that.
13 And I would like to know why NRC nor the DOE
14 responded to, to give us the answers to those very basic
15 questions. The answer in itself may be, your non-response.
16 It may be that there is no one to regulate. There is no one
17 there to oversee. There are no laws there to deal with
18 people who break the law, what we see as a very -- you know,
19 no debate. You should not be selling radioactive metal into
20 the market place.
21 So if we can't get compliance, regulation,
22 oversight, on the current problems, why introduce a whole
23 new layer, a whole new level of uncertainty into the
24 equation? And I think that that might be part of the
25 unstated but, to me, palatable message that is coming from

1 the regualtors.
2 And the last point that I'm gonna make is that, number one,
3 the NUREG thing that you're implying is completely based on
4 hypothetical numbers. What is out there is that the
5 Department of Energy, the Atomic Energy Commission, ERTA may
6 in fact have been involved in the recycling of radioactive
7 metals as part of their operations. And there is ample
8 documention for that, that Mr. Guttman wrote a letter to you
9 guys on November 1, brought that to your attention.
10 This July keytam filed in Paducah brings that to your
11 attention. My October 7 letter brings that your attention.
12 My August 7th or August 20th letter to Leah Deavers, the
13 Head of Oak Ridge Operations -- brought that to her
14 attention, and we asked for information. Give us the
15 information. Tell us. But we get no answer. No response.
16 So it may be that classified national security
17 issues are going on there that, that under the rubric, under
18 the guise of national security, this material is moving
19 around, either within the loop of government facility or
20 being sold off-site. We have evidence that it is being osld
21 off-site, has been sold off-site.
22 So that's something that needs to be dealt with,
23 but I don't see anybody at the NRC -- and I mean, Chip
24 Cameron is right up there in the top of the NRC, in the
25 Office of General Counsel. If I can't get relief from him,

1 then what does the average citizen have in terms of
2 protection?
3 And the last thing that I'm gonna say is that, that there is
4 not perception that you can make rules on. You could make
5 rules on basic proof. And the basic proof could be tracking
6 down the affected people, both in the distant past, in the
7 intermediate past, and in the current working area of people
8 who are working around this and who are suffering from
9 health problems.
10 You could look at their health problems and you could
11 determine, number one, before it gets to a little kid with
12 braces or to a woman with an IUD or the person with the
13 frying pan, before you deal with those hypothetical
14 situations, deal the proof. Deal with the real issue right
15 now and look historically at the people who've been
16 affected. That is proof, and that is something that you
17 could make rulemaking on. But if you don't make it
18 completely independent of DOE and NRC and its favored sons
19 and favored daughter contracts, like the collusion between
20 this SAIC issue -- and I see this is as collusion.
21 If you're unable, unwilling to provide the documentation on
22 the contract between SAIC and the NRC, it's collusion --
23 then you have no credibility. And until you get credibility,
24 forget it in terms of making this, these broad efforts to
25 pass this stuff off to the public. And let me pass this

1 around.

2 STINSON: Great. And if you could start, maybe

3 start one document in one direction and one in the other,

4 people could take them --

5 HONNICKER: Well, I've got 'em all sorted out.

6 STINSON: Okay. Great. We are going to take a

7 break. And what I'm gonna suggest is that we break for 20

8 minutes until 4:15, let these people get started. And we'll

9 continue to work on the noise level next door. At that

10 point, we're gonna come back and talk about aluminum.

11 Also, if you have any suggestions, Mike and I are

12 both here and, for how to continue this discussion and make

13 it most productive, material, my material, we are open to

14 your suggestions. Thanks.

15 [Recess.]

16 STINSON: What a deafening silence. It really

17 helps.

18 Okay, I understand that the group that is currently convened

19 next door to us will not be here tomorrow. Everybody clap,

20 yay. So that should be the last we have of that

21 interruption.

22 Why don't we just walk through the table and see that we

23 understand what each of the, what's meant by each of the

24 columns and begin a discussion on aluminum to get a sense of

25 whether we are gonna be able to explore aluminum in any

1 depth through this method. This is an experiment in itself.
2 We're trying to see if there's a way to tease out some of
3 the distinctions between different materials and what's
4 gonna be necessary to understand the implication of control
5 of different materials.
6 So first, why don't we see what Dan Swede has to
7 say, and then --
8 SZWED: I just want to -- speak into the
9 microphone.
10 STINSON: Yes, start with that.
11 SZWED: Speak into the microphone. I'm Dan Szwed.
12 Just a few comments on the discussions over the last
13 half-hour or forty-five minutes. We seem to want to take
14 this restricted use issue off the table and go to a full,
15 unrestricted use. And from my perspective, that's what we
16 have today. And that's been unacceptable to the metals
17 industry.
18 The way the metals industry has responded is we
19 have installed very sophisticated, very expensive radiation
20 detectors -- at the truck gate; at the railroad gate; on the
21 scrap bucket; at the arc furnace, or whatever melting
22 furnace we're using. We currently reject loads. We have
23 rejected loads. And we'll continue to reject loads because
24 of radioactivity.
25 We've heard about all of the wonderful things that radiation

1 or nuclear medicine have done for society, how we've
2 controlled things by letting sources sit around for years
3 and decay, but no one appears to have taken the initiative
4 to solve the problem.
5 STINSON: Can you move the microphone just a
6 little closer.
7 SZWED: We think the NRC has failed to control the
8 encased sources. Industry again responded by going out and
9 installing detectors. We needed to protect our workers. We
10 needed to protect our product. And we've done so.
11 So with the inevitable of all the benefits that we've
12 received from nuclear energy, from all the weapons
13 development, the technology boom, clean nuclear power, the
14 day has finally come where we've got to deal with the waste
15 problem. This is not unlike what highly regulated
16 industries like metals have faced over the last twenty and
17 thirty years. Nobody liked the smoky skies; nobody like the
18 polluted waters. Nobody liked the hazardous waste being
19 shipped off-site from our facilities.
20 We were told, clean up your act, and we did it.
21 And we didn't do it by saying to our customers, for every
22 pound, for every ton of steel you take from us or you buy
23 from us, you have to take a pound of our hazardous waste.
24 The open markets just don't work that way.
25 It sounds like what we want is we want an open market, a

1 free market disguised as some type of very stringent
2 regulatory control. And frankly it's just not gonna work.
3 STINSON: Okay. Peter, did you have a -- opening,
4 closing type of comment?
5 HERNANDEZ: Peter Hernandez. I had a question.
6 The comment was made earlier that institutional controls
7 can't be trusted. And I believe that that's true. But I
8 don't understand how you can apply that only to the
9 restricted use option. Why wouldn't institutional controls
10 not be trusted for free release as well? Are you saying
11 that in the free release situation, everybody could be
12 trusted to make sure that no material is released above the
13 free release limit? STINSON: I'm sorry -- I'm sorry,
14 you've gotta use a microphone. I'm sorry. I had to consult
15 the -- do you have a question? Who'd you pose the question
16 to?
17 HERNANDEZ: I did ask the question.
18 STINSON: To, to whom?
19 HERNANDEZ: The folks who are advocating
20 eliminating restricted use category because institutional
21 controls can't be trusted.
22 STINSON: Um hmm. Okay, so we'll give a chance
23 for anybody to respond that would like to.
24 CARDILE: Can I just add a clarifying remark?
25 When we mentioned earlier about taking it off the table or

1 not taking any restricted use off the table, we were only
2 talking. And nothing's coming off the table today. Um,
3 we're only talking about getting more ideas. We heard a
4 little bit about how going from a license generator to a
5 licensed product like a steel drum or shipping drum, or a
6 shielding block may not need a regulation to be written
7 because it's, it already can work under the existing
8 procedures.
9 Nevertheless, it's still on the table in terms of trying to
10 understand what can be done with this material. So -- and
11 it would still be on the table in terms of explaining, I
12 think to our Commission in March of 2000, here's the
13 material and here's various things and here's what we've
14 heard, and we've heard that licensed -- continuing the
15 material in some licensed, uh, procedure or arena is a
16 possible way to go.
17 The other thing that we want to make sure that we
18 understand from everyone here -- we've heard a couple of
19 different things. We've heard with regard to other types of
20 restricted uses, where the material comes out of a license
21 generator, it's surveyed, and once it's surveyed and leaves
22 the control of an NRC licensee, at which point the NRC has
23 no licensing control over it anymore -- it goes, for
24 example, perhaps to a, a person who handles scrap, perhaps a
25 steel manufacturer who would then send the material to only

1 certain uses, for example a bridge. Perhaps military
2 equipment, such as a tank. Or it could just be thrown in a
3 landfill, put in a landfill becuaes these exposure levels
4 are much lower to the public.
5 So the question would become, the person who takes
6 the material and brings it to a unlicensed use, how do we
7 make sure that the material only goes to these uses where
8 people are not exposed and doesn't wind up here. One way to
9 do that is to just ahve some kind of -- I'm just talking off
10 the top of my head -- some kind of tag on the equipment
11 where you knew that, okay, it was only going to go to these
12 restricted uses. Obviously, that's probably not gonna work,
13 but what might work? Does the NRC need to license the
14 manufacturer of the material to be sure that it goes to this
15 military tank? Does the person who builds the tank need to
16 be licensed by NRC in some way?
17 So you've heard a little bit here today about
18 concern about whether institutional controls assuring that
19 the material would wind up in these uses -- we've heard some
20 questions about whether or not that can be trusted or not.
21 And as I say, we really want to hear what your thoughts are
22 about how to go from, you know, which of these is viable,
23 licensed or unlicensed, and the path to get to them, which
24 of those is viable?
25 STINSON: Okay, so continuing that discussion on

1 restricted, let's give Steve to answer the question about
2 trusting institutional controls, at least as a start.
3 COLLINS: I'm one of the people that made a remark
4 about the institutional controls, so let me clarify in the
5 context of when I made the statement, because it's coming
6 out differently now.
7 If the regulatory agency issues a license that covers
8 certain material that includes what I'll call institutional
9 controls now, but then they follow up through inspection and
10 other accounting methods to make sure that those controls
11 over a period in time are in place and are being followed
12 through and are being kept. I have a pretty high level of
13 confidence that things will continue just fine and
14 compliance will usually be there and there won't be any
15 problems.
16 It's when you set up a system that basically
17 relies on institutional controls where it's unchecked,
18 uninspected, unmonitored over a long period of time, that's
19 where I ahve no trust or faith that the system will work.
20 And the general license devices in the situation that we're
21 in now that so adversely affects the metal recycle
22 industries is my main example of that. That's a situation
23 where, for certain categories of materials, generally
24 licensed materials for certain of those, basically a system
25 was set up, people were allowed to receive them, and there

1 was never any follow-up or tracking or no one ever going, in
2 many cases, to ensure that those institutional controls were
3 in fact maintained. And that's where the system has fallen
4 down.
5 Some of the states, when we became agreement
6 states, said that's not good enough, and we started going
7 back and trying to rebuild the database and developing an
8 accountability system to get control of that again. And
9 some of the states have already completed that and have good
10 control. The NRC is in the process now of regaining the
11 control over part of that; it's very expensive to do that
12 and it basically is gonna cost fees for all of those general
13 licensees that, you know, prior to this time, never had to
14 pay. But they are gonna bear the cost of this.
15 I'm sure the steel industry's response is, better
16 them than us. and if they're the ones that's using the
17 gauge and they're receiving the benefit of it, it's only
18 fair that they should have to pay. Does that help clarify
19 and answer the question? Thank you.
20 STINSON: Okay. Mike and Kristin, you've both got
21 your cards up. Are you taking us into aluminum or are we
22 continuing this discussion either about restricted -- okay.
23 Go ahead, Mike, and then Kristin.
24 MATTIA: Is there a future for recycling
25 uncontaminated material from nuclear facilities? I would

1 say the answer is yes, provided that the recyclers, the
2 steel mills, and the consumers all agree on what
3 "uncontaminated" is, meaning that it's not contaminated
4 below a certain level, but it's uncontaminated.
5 Is there a future for reuse or recycling of
6 decontaminated material or material that is contaminated to
7 a low level, or both? I would say possibly, again provided
8 that the people who are gonna take it and recycle it and
9 melt it are assured that their workers are protected, that
10 their facilities are protected, and they have individuals or
11 consumers that will buy it. And that goes back to the
12 premise of perception, that these things are, can be worked
13 out. These things can be agreed upon.
14 But until, until you have consumers and producers
15 agreeing on what are the ground rules and who will accept
16 what, under what circumstances, under what definitions, you
17 have almost the situation that you had back some years ago
18 when M&M Mars stopped making green M&Ms, I think it was.
19 Why? Well, because there was a green dye that was
20 associated with having a carcinogenic effect. Now none
21 of the M&Ms that Mars made used that green dye, but M&M
22 sales dropped because you have a handful of M&Ms, you see
23 green, they had to have been dyed, therefore, I'm not buying
24 M&Ms --
25 COLLINS: It was the red ones.

1 MATTIA: The red ones, thank you.

2 [Laughter.]

3 COLLINS: It was in a red and green package.

4 MATTIA: I missed out on eating a lot of green

5 M&Ms, then.

6 [Laughter.]

7 MATTIA: Again, it's perception. You know, the

8 one thing we've seen in the U.S. market, as well as the

9 world economy market, is that things can be worked out. The

10 last thing I wanted to mention, we talked about global

11 markets and I just came back from a meeting some months ago

12 in Geneva that was hosted by the European, Economic

13 Commission of Europe. And basically that meeting was

14 convened because the steel producers in Europe were getting

15 wind of the deregulation of the free release of material and

16 were saying, in essence, what?

17 And they got together saying, we have to send a signal to

18 the European Union that your release levels aren't

19 necessarily our acceptance levels. And so now they've got a

20 release criteria that is being passed along and adopted, and

21 you've got steel facilities in that same European Union who

22 are in essence revolting, saying I'll be darned if I'm gonna

23 buy that stuff because you guys did not consider us when you

24 passed this concept.

25 So I think what we need to do is learn from that

1 lesson and make sure that all of the stakeholders -- the
2 consumers, the producers, the recyclers. They are in
3 agreement as to what's compatible, what's usable, what
4 isn't, what's acceptable, whose definition defines what.
5 And then when you have that, then you can have a rulemaking
6 that will determine how you take this material and introduce
7 it into those markets that have said in advance, we'll take
8 it.
9 STINSON: Paul, and then Kristin.
10 GENOA: Paul Genoa, Nuclear Energy Institute.
11 Just a clarifying remark regarding institutional controls
12 and what I would call compliance with existing regulations,
13 just to make the differentiation. They are two different
14 issues, and clearly one can look at the history of mankind
15 and see that numerous mistakes were made but lessons were
16 learned and we moved forward. You have to acknowledge that
17 mistakes are made. You do your best to fix them and corect
18 them so they don't happen again. But you move forward.
19 Now, institutional controls is assuming that some
20 extra-regulatory activity will continue and impose a
21 restriction on some activity. Given what we're talking
22 about, we perhaps would allow materials, radioactive
23 materials, to be fabricated into a railroad tie or a bridge
24 girder. And perhaps it would be identified. Perhaps there
25 would be records. Perhaps the railroad industry would take

1 responsibility to see what happened to. I mean, you could
2 think of any number of restrictions. Whether they're
3 effective or not is a different story, and you have to learn
4 from that.
5 That is distinctly different from compliance with
6 an existing regulation, which a licensee has a requirement
7 to perform an adequate survey, conduct appropriate
8 evaluations prior to the release of matieral. In this
9 situation again, we have to acknowledge that people are
10 human, they can make mistakes, or they perhaps could even do
11 it intentionally. That's why the regulatory agencies, the
12 NRC and the agreement states have an enforcement branch.
13 They have inspections and they have enforcement and they can
14 impose civil penalties. So I believe that it is
15 possible to set up, and I believe that we currently have, a
16 system that adequately protects public health and safety
17 because of those elements. And I think the compliance,
18 actually, in the industry, is extremely high. And I think
19 that you, you could probably point to very limited
20 applications in the commercial industry where non-compliance
21 has resulted in a real injury to the public.
22 Now take that a step further and look at long-term
23 institutional controls. That adds yet another level of
24 complexity into the dialog. I don't believe it's possible
25 to get there until you first set a free-release criteria or

1 an unrestricted release criteria, and that's the only reason
2 I suggested that it may be premature to try to address
3 restricted and unrestricted at the same time. I believe
4 it's a step function; you have to have one before you can
5 discuss the other rationally. Perhaps it can all be done in
6 one rulemaking. I'm not sure.
7 STINSON: Kristin, and then Tony.
8 ERICKSON: Okay. I would -- Kristin Erickson,
9 Michigan State University. I think that's what, in my view,
10 this is all about, what we've been talking about here.
11 We're getting to a point where what we need, and I think the
12 problems we have now, are because we don't have a uniform
13 standard that we all have to abide by that's very crisp,
14 very clear, well published, well-known, and easily measured.
15 We have that for air; we have that for water. And we all do
16 that. We know our numbers. In fact, at MSU, we take ten
17 percent of all of that and stick with it easily -- no
18 problem.
19 Right now, we don't have that for solids. And
20 because of that, you can see some fairly capricious
21 applications and some capricious responses, not because
22 anybody means to, but because if a person goes to NRC and
23 proposes, well, I've got fifteen tons of soil and all I have
24 -- I'll tell you what one person just did to me. "Well this
25 amount of water, the tritium in this activation that we

1 might have is only the same level as what would go out in
2 the sewer." I said, that has nothing to do with the health
3 and safety and the contamination if it breaks and spills all
4 over and we have to clean it up. They are two different
5 animals. And you can see misunderstandings. You can see
6 mis-information -- again, the other problem that I see that
7 really needs to be addressed and that I will laud if it
8 happens here -- a consistent, uniform defined set of
9 parameters for the equipment and the measurements.
10 I've seen people take an instrument and say, well
11 I found nothing; it was less than background, I mean it
12 wasn't even background. What instrument was it? Well, it
13 was a beta pancake. And what are you looking for? Iodine
14 125. That's a gamma; you can't find it. Or, I used that
15 instrument for tritium, which no instrument can detect
16 except a simulation counter.
17 I've seen these things happen from time to time with people
18 out on our campus that are new learners. They've got a lot
19 of things in place to prevent that from causing a problem.
20 But those things do happen, and without a defined limit,
21 first of all, and defined ways of detecting, you must use
22 the appropriate equipment, calibrated for that isotope or
23 for that radiation.
24 And you must prove with your measurements and with
25 your calibrations that this instrument does meet this limit.

1 Right there, that's a big part of what we do at our
2 university, and these are the kinds of standards that we
3 need. And if we had all of that, that would be very easy to
4 show you and the industry or anyone else -- the public or
5 whoever -- what we are doing and how we are doing it. And
6 it would be easy to administer.
7 STINSON: Okay, and that takes us to -- part of
8 our discussion is, you know -- in terms of the alternatives
9 for control for each of the different types of material, are
10 there certain materials that might be more appropriate for a
11 universal standard, as Kristin is advocating for, and others
12 that might be more appropriate for unrestricted, or
13 restricted release in some scenario where it's directed to a
14 particular use, et cetera. So I want to move into that
15 discussion. I want to experiment with doing it focused
16 specifically on aluminum.
17 The other three materials that I've heard so far
18 mentioned -- some in this larger group and some in sidebar
19 discussions -- that we may want to add to this list are
20 lead, nickel and medical devices, actually, and whether
21 medical devices would be treated separately. So I pose that
22 question at this point.
23 Let me just quickly walk through really what Frank's already
24 covered in terms of each of these columns. If that's all
25 right, Frank, I'll just quickly walk us through it. For

1 aluminum, for instance, if we could just have a little bit
2 of discussion from you all as to what your experience is
3 with aluminum. What are we really talking about in terms of
4 the kinds of aluminum materials that are at decommissioned
5 or at potentially decommissioned facilities, powerplants, or
6 from other types of licensees? What's the current method of
7 release of those? And -- I mean, how does it really work in
8 the application of the case-by-case scenario? And I think
9 that's, you know, that's the primary set of questions for
10 column 2.
11 For, in the case of aluminum, what are the
12 potential alternatives? Is prohibition appropriate for some
13 reason? Is it a particular area of concern that would lead
14 to prohibition of materials as being a reasonable
15 alternative? And, you know, what about unrestricted release
16 in the case of aluminum? What would be some of the market
17 and other kinds of implications for that material in
18 particular? If you were to establish restrictions on some
19 of the aluminum materials that are currently released in the
20 case-by-case scenario, how would that work?
21 And then talk a little bit about, well, how should
22 the NRC go about analyzing the alternatives and completing
23 different kinds of analysis to support a particular
24 alternative on control of aluminum, what are the potential
25 costs of those, and how do you ensure, you know, sort of

1 long-term institutional control, or what kinds of
2 institutional controls might be of help?
3 Do you see where we're trying to head in getting into a
4 little bit more specific conversation? One of the reasons
5 for doing this, of course, is as much as we know and love
6 and hear about the steel industry, there are other related
7 industries and other materials that would potentially be
8 affected by rulemaking by the NRC.
9 So we picked aluminum first because we thought
10 maybe it's close to steel and some of the, you know, market
11 impacts, et cetera, and you know, might be able to borrow
12 from that discussion and expertise we've had in the three
13 meetings already.
14 And I'm gonna ask, at least Paul, and maybe others
15 in various industries, to try to kick us off in terms of
16 talking about what happens in the current case-by-case
17 release of aluminum or how, how might aluminum be impacted
18 in certain industries. Did you have something, Dan?
19 GUTTMAN: Yeah, I've got a [off-mike]
20 STINSON: Okay. Let's --
21 GENOA: Paul Genoa, NEI. And hopefully this isn't
22 unfortunate. I'm gonna give you some very limited
23 experience with aluminum because, quite frankly, I'm not
24 aware of large amounts of aluminum that are uniquely
25 released from our facilities. I mean, you can envision

1 aluminum being in the carriage of certain types of
2 equipment.
3 You can envision, perhaps, a little bit of
4 aluminum angle iron used in very specific applications. You
5 can envision aluminum soft-drink containers somewhere in the
6 cafeteria. You can imagine some electrical wiring that
7 might be aluminum, or there may be aluminum components
8 associated with various electronic components. But aluminum
9 is not a -- I'm not aware of it in a unique, pure form at
10 any extent, at least in nuclear power plants where I have my
11 greatest experience. It may be there, but--
12 But, for what -- and that complicates it because,
13 again, in the real world, the aluminum we would find is
14 probably part of the chassis of a computer or of some kind
15 of radiation detection instrument. And we're not gonna take
16 it apart to survey that one piece. We're gonna survey the
17 entire part.
18 So the current mechanism would be, one, based on process
19 knowledge. Do we believe there's a reasonable chance that
20 this thing is contaminated at all? Did it ever go into a
21 radiation-controlled area? Was it ever near any free
22 radioactive material or contamination? Could it, through
23 its fan, bring radioactive contaminated air through it in
24 some way where it would collect? So you first do a process
25 knowledge kind of assessment.

1 If you assessment says, yeah, there is a
2 potential, then you would have to go ahead and survey.
3 Generally, if it's aluminum, a metal, then it's going to be
4 a hand-frisk. If it's a complicated piece of equipment, it
5 may have to disassembled in some fashion. And if it's very
6 complicated and there's a significant chance that it's
7 contaminated, it won't be released because you can't prove
8 that it's clean. And this is the problem.
9 Oftentimes we are repeating this as if all the
10 material we're talking about is contaminated at this full
11 level universally. And what I'm saying is, the bulk of the
12 material we release may not be contaminated at all, and
13 we're trying to prove that.
14 CARDILE: You mention --
15 STINSON: Go ahead and mention your name and
16 affiliation.
17 CARDILE: Frank Cardile of the NRC. You mention
18 that you frisk it and you say whether it's clean or not
19 clean. What criteria -- I mean, you don't just say it's
20 clean. You must, you measure it against some thing.
21 GENOA: Paul Genoa, NEI. As you know -- I guess I'm
22 reflecting on a power plant situation. And we go beyond
23 non-detectable; we go to no license activity, which
24 constantly leaves us in jeopardy because someone can always
25 look harder. But you guys have at least have helped by

1 saying, well this is how hard you need to look. And how
2 hard you need to look is Reg. Guide 1.86, if it's
3 surface-contaminated. And if it's volumetric, then we need
4 to go to using gamma spectroscopy and other techniques to go
5 down to environmental LLD levels, which are not provided for
6 all materials, and certainly not aluminum, metal, or
7 anything else. And so there's a giant hole in the guidance.
8 Fundamentally, we use the best technology we can
9 to prove there's no licensed material there. And that
10 basically is nothing detectable above background. And you
11 can't detect below background.
12 STINSON: So, one of these would be helpful. If
13 anybody has any experience -- I think what Paul is saying,
14 it's small amounts of material probably mixed with other
15 materials. If anybody has experience or knowledge of a
16 case-by-case --
17 GUTTMAN: Yeah.
18 STINSON: -- application for release of a larger
19 amount of material, that would be helpful. It sounds like
20 Dan does; maybe others as well. Go ahead. You have to pull
21 the mic right up to you.
22 GUTTMAN: Dan Guttman, PAICE. Yeah, I'm sure
23 Judson --
24 STINSON: A little closer. Sorry.
25 GUTTMAN: I only know part of the facts, and

1 Judson will of course help me fill in the facts here.
2 Aluminum, of course, is among the materials at Oak
3 Ridge that's contaminated in the compressor blades, and --
4 STINSON: Compressor blades?
5 GUTTMAN: Compressor blades, yeah. And, you know
6 -- are you aware of that, Judson? And so, you'll help me.
7 On the health environmental impacts quadrant -- you'll see
8 why I'm going in this order -- there was no worker analysis,
9 as far as we could tell, of any risk recycling. And if
10 there were, it was filed in secret by BNFL with Tennessee,
11 so who knows?
12 But, and the entity doing the recycling, MSC, was
13 found to have lots of OSHA and other environmental kind of
14 violations. And the Tennessee State Authority didn't look
15 at any of this stuff -- as far as we know, but they're not
16 responding to our letters. And most recently, about a
17 couple of, a week or two ago, some union, president of the
18 local union who was working on the BNFL contract, which is
19 not the union I represent, to be clear, said that somebody's
20 gonna get killed on the job and consumers should be pretty
21 scared about it. So that's the health and environmental
22 impact.
23 So the interesting question is the alternatives
24 and the cost impacts. As Judson can fill us in, apparently,
25 even though the contract was ostensibly terrifically vetted,

1 as you'd expect a quarter-billion dollar contract to be,
2 nobody seemed to know much about this aluminum. And it
3 appears to be volumetrically contaminated, and there appears
4 to be some dispute between the Department of Energy and
5 BNFL, MSC, Managed Reactor Sciences -- who's on first. And
6 so, I'd like -- because this was all vetted so well, as
7 Judson has made clear, Judson to tell us exactly how DOE and
8 BNFL viewed this before the contract, the volumetrically,
9 recycling potential, and where that dispute is now, what's
10 going on.
11 STINSON: Well, one of the things to say up front
12 is that what we -- while I understand that ultimately this
13 material might end up in an, NRC-licensed hands, we want to
14 focus on, I think, materials that are specifically under,
15 right now under NRC --
16 GUTTMAN: Yes, Barbara. Let me just qualify --
17 STINSON: Maybe this can still illuminate the
18 discussion.
19 GUTTMAN: Yeah, but this goes back to the
20 discussion wehre I impolitely -- I apologize -- interrupted
21 you earlier. To be clear, it's obvious that all of this
22 stuff is for practical purposes, whether DOE's gonna
23 default, take NRC or not. What DOE has basically said is,
24 hey, we've got SAIC and BNFL recycling this, but we don't,
25 so we don't want to too directly dump this out on the

1 market. We'll launder it through the NRC.

2 So what happens is, once the waste leaves the Oak

3 Ridge facility, as the volumetrically contaminated nickel

4 does, and as I presume the volumetrically contaminated

5 aluminum does, although since there's a dispute, who knows

6 where that's going? Then it is not DOE; it is TETA,

7 Tennessee, which of course an agreement state; if it's got

8 authority, we don't know yet. But it isn't DOE, which, at

9 least according to DOE, would control the waste. It's

10 Tennessee as a licensee of the NRC, so that DOE has

11 calcualted this in a manner so that this is all, in fact,

12 NRC jurisdiction, although NRC apparently is sort of playing

13 along, perhaps through SAIC, saying what's really DOE.

14 STINSON: Is there anything that you want to say?

15 GUTTMAN: Yeah. If you can just tell us where

16 that volumetrically contaminated material is, who's

17 responsible or it, who's gonna pay for the recycling?

18 Because that's the cost impact of it.

19 STINSON: Well, particularly if it relates to NRC

20 having any jurisdiction over it, ultimately.

21 LILLY: Yeah, if the aluminum is volumetrically

22 contaminated, there is no, nothing has been done to license

23 the release of that as volumetrically contaminated. So that

24 issue is still up in the area right now, as I understand it.

25 There's some issue whether it's volumetric or surface.

1 GUTTMAN: But is there a plan? Because this was
2 all vetted, the contract, as you were saying, two years ago.
3 Presumably, people had a plan as to what was going to happen
4 to this aluminum. Isn't there a plan?
5 LILLY: The elements of the contract gave BNFL the
6 option to recycle metals. It did not dictate that BNFL
7 would recycle metals. So it was a fixed-price contact.
8 BNFL is trying to work it so that they get the best
9 cost-benefit bang for the buck for those metals that can be
10 decontaminated.
11 GUTTMAN: Isn't BNFL, in terms of the cost impact
12 -- aren't they --
13 STINSON: Okay, this is --
14 GUTTMAN: Aren't they making a claim of cost
15 impact? This is a case study. Nobody else has got anything
16 --
17 STINSON: We don't know that nobody else does
18 because they're still part --
19 GUTTMAN: Well, I just want to -- in terms of cost
20 impact, isn't it true they're making a claim against you for
21 misrepresentation?
22 LILLY: I'm not aware of any claim on the issue of
23 whether the aluminum is volumetric or surface.
24 GUTTMAN: No, on the amounts of the material.
25 STINSON: Okay, I'm gonna ask you two to take this

1 discussion to the side and see if there are any other
2 examples on aluminum. You know, maybe there's still some
3 illuminating -- illuminating --
4 [Laughter.]
5 STINSON: -- elements of that that may be useful
6 to draw out. But let's see if there are any other examples
7 folks have. I don't know who was up first. Tony, go ahead.
8 LA MASTRA: Tony La Mastra.
9 STINSON: Speak up just a little.
10 LA MASTRA: I'm definitely not an expert on
11 aluminum, but as part of some of the work that I've been
12 involved with, with the ENCRP Committee, it appears -- and
13 this will probably go under the health and environmental
14 impact.
15 It apepars that depending on the process, if, if
16 you have a cryolate-based process where you're essentially
17 refining your aluminum using cryolate, that the cryolate
18 will dissolve just about any metal so that if, if you have
19 contaminated aluminum, it's much more likely that that will
20 become, at least part of it -- again, I don't have
21 partitioning factors -- but that part of it will end up in
22 the aluminum, whether or not it's something that would
23 normally alloy. It would be kind of -- as it was explained
24 to me -- like taking a cube of sugar and dissolving it in
25 hot water. So the cryolate essentially dissolves just about

1 any metal. And that could be transferred to the aluminum.
2 So in one respect, I think you ought to be
3 reasonably careful, and probably ought to seriously look
4 into what the metallurgy is and what the real partitioning
5 is, of radionuclides that might be present on, you know,
6 aluminum scrap, whether it's -- it is produced in large
7 quantities or not. I mean, I think it's something I think
8 the NRC ought to look at.
9 CARDILE: Can I ask a clarifying question, maybe
10 of the group? We've heard at earlier meetings that the
11 steel that can be recycled -- and Tony had a slide on the
12 amount of steel at NRC licensed facilities -- is a small
13 fraction of the total steel recycle, and therefore I think
14 we've also heard earlier, why, a, there's no impact at all,
15 so why, why recycle this material? It doesn't affect the
16 recycling.
17 Is there any information here -- I guess Paul has
18 talked about the fact that there's very little aluminum at
19 NRC-licensed facilities. Do you have a feel on the
20 comparison of that to the total aluminum recycling industry,
21 whether it's also a small fraction?
22 STINSON: Mike -- no.
23 GENOA: Very briefly -- Paul Genoa, NEI. Again,
24 I'll just go back to my own experience. At the last power
25 plant I worked at, the facility had a carbon steel recycle

1 bin. They had aluminum recycle -- or, excuse me, a copper
2 recycle bin. And they had a stainless-steel recycle bin.
3 And they had a trash copper bin. I don't think they had an
4 aluminum copper bin, but I may be wrong.
5 I mean, you know, maybe someone else and maybe in
6 a non-electric utility application has sufficient -- I mean,
7 aluminum's, it's out there. It's used in cooling fins; it's
8 used in all sorts of things. But I don't know that we
9 recycled any significant amount of it, and of course I don't
10 know what the national output is, so I can't help you.
11 STINSON: Sounds like a number will need to be
12 generated, if this is going to be pursued. Mike?
13 MATTIA: I just wanted to follow up with the
14 question, since it was raised, that there, there is aluminum
15 being, as I understand it, recycled, or is that a true
16 statement? That there's aluminum being recycled from DOE
17 facilities? I would be interested in getting an
18 understanding of what is being recycled. What is the metal
19 in terms of what is it being used as in DOE? Is it being
20 recycled? Is it coming out as low-level contamination from
21 DOE facilities? Is there contaminated aluminum coming out
22 of DOE?
23 LILLY: This is Judson Lilly from the DOE. If
24 there is aluminum being recycled right now -- if, and I'm
25 not sure what the circumstance is. If it's being recycled,

1 it's either coming out as surface clean -- that would be the
2 only way that it would be coming out is --
3 STINSON: Does that mean no detection? Surface
4 clean -- does that mean no detection?
5 LILLY: No. It would mean, it would mean it meets
6 the requirements of NRC 1.86. And it would depend upon
7 whether it's being title-transferred to an NRC-licensed
8 facility, and that would be, meaning 1.86. If it's being
9 released from the DOE facility, it would be meeting DOE
10 Order 5400.5, which the numerical values are the same as
11 1.86. That's how it would be done if it is going on right
12 now.
13 What Mr. Guttman and I were trying to establish
14 is, if it's volumetric, then there are no provisions right
15 now for us to be releasing aluminum.
16 GUTTMAN: But it could be released --
17 STINSON: You've gotta use that mic, and you've
18 gotta be recognized.
19 GUTTMAN: But they could be released to the --
20 STINSON: This is Dan Guttman from PAICE. Go
21 ahead.
22 GUTTMAN: But they could be released outside the
23 Oak Ridge fence, taken over by BNFL, and then sent to you
24 guys. That's what might happen.
25 LILLY: Right. Sometimes the material is shipped

1 as radioactive materials to an NRC-licensed facility. And
2 then at that point, when the title is transferred, NRC
3 jurisdiction takes over.
4 STINSON: Go ahead, Mike. Follow up.
5 MATTIA: Just a follow-up question, just for
6 clarification. If material is released either from an NRC
7 facility or -- excuse me, from a DOE facility, and it meets
8 Reg. Guide 1.86, is it a true statement that if it leaves a
9 facility meeting that criteria, it does not have to go to
10 another facility? It currently can be released right into
11 commerce? Is that a fair statement?
12 LILLY: This is Judson Lilly, DOE. Yes.
13 GUTTMAN: I would disagree -- no.
14 [Laughter.]
15 GUTTMAN: Under 5400.5, it says that DOE does not
16 have the authority -- obviously we have different positions,
17 so I'm not saying I'm right, obviously, and Judson's not
18 saying that the private citizens' position is right. But I
19 think there's an argument that under 5400.5, Section 11j --
20 SPEAKER: [OFF MIKE]
21 GUTTMAN: -- the section having to do with -- as
22 Judson correctly described, the transfer of this material,
23 DOE can't transfer material to someone who's gonna release
24 it for commerce -- you know, free release -- ultimately,
25 without specific approvals, which in the case, say, of this

1 aluminum, have not taken place. That is, the approval of
2 the Assistant Secretary of Energy, Environmental Safety, and
3 Health. So there's a real question -- one of the questions
4 that I think's gonna be before DOE soon is whether what is
5 happening there in the BNFL situation is lawful, not only
6 from the NRC position but from the DOE position.
7 LILLY: This is Judson Lilly from DOE again.
8 There is a well-established precedent for materials to be
9 shipped from the Department to an NRC-licensed facility for
10 title to be transferred, and then for the facility to do
11 surface decontamination, verify that it meets 1.86, and then
12 release it into commerce. That's a well-established program
13 that's been going on for years.
14 GUTTMAN: But you don't have any 1.86 volumetric
15 standard, right?
16 LILLY: There -- to my --
17 STINSON: Right.
18 LILLY: I think the 1.86 --
19 GUTTMAN: It's surface, not volumetric.
20 LILLY -- volumetric --
21 GUTTMAN: There is no volumetric at DOE.
22 LILLY: There is a volumetric within DOE.
23 GUTTMAN: Within DOE, but not --
24 LILLY: Within DOE there's a volumetric; I'm not
25 -- for the 1.86 I'm not sure how volumetric is handled.

1 GUTTMAN: It doesn't -- there's no, there's no
2 Federal standard currently for volumetric.
3 STINSON: For volumetric, and that's one of the
4 holes that's been identified. LILLY: What I was
5 talking to was referring to surface release criteria.
6 GUTTMAN: Okay.
7 STINSON: Okay. So let's just take a time check
8 here. It's 5 o'clock. We've got three cards that are up.
9 I want to see if there's anything else that folks want to
10 say. Mike has a follow-on, too -- see if there's anything
11 else folks want to say about aluminum, as we've taken it so
12 far. I mean, we'd like to have some understanding of folks'
13 ideas on the various alternatives appropriate for aluminum,
14 especially if there's any distinctions between that and the
15 general conversation that we've already had. At least, get
16 that far. And we've got, already, some thoughts on costs
17 and environmental impacts up on the chart.
18 Let's see. Mike, did you just want to finish?
19 MATTIA: I just wanted to follow-up because, for
20 clarification. What is the volumetric release criteria for
21 DOE, and if something is released for volumetric
22 decontamination and it then achieves that, is it correct to
23 say that it can then be released to general commerce?
24 STINSON: And the line of questioning is relevant
25 because of the precedent that it might set for NRC, and

1 telling you what material's already out there in the
2 wavestream. Okay, Jud.
3 LILLY: Okay. The DOE standard that is relevant
4 in this area is DOE Order 5400.5. The primary elements of
5 that are related to surface release criteria. There is a
6 provision within that, that allows for a case-by-case
7 evaluation of any proposed release of materials. And that
8 material would have to be released under DOE ownership and
9 DOE auspices. But the screening criteria for that are one
10 millirem or less. Less than one millirem.
11 SPEAKER: Per what time?
12 LILLY: Per year.
13 STINSON: Okay.
14 LILLY: And the operations office managers have
15 authority to make evaluations. They need to demonstrate
16 that an evaluation has been done and that ALARA is being
17 satisfied.
18 MATTIA: So, just so I understand, the volumetric
19 release criteria for DOE is a dose-based criteria, is that
20 correct?
21 LILLY: Judson Lilly, DOE, again. It's close, but
22 it's a case-by-case evaluation. So you are not able to say
23 it's one millirem or lower, boom, out it goes. You need to
24 do a case-by-case analysis of each specific proposal to do
25 any recycling. So it's not, it's not a level standard. It's

1 a case-by-case evaluation that needs to be conducted.

2 STINSON: But at one millirem.

3 LILLY: At one millirem is the ceiling for that,

4 where the operations office has the authority. There are

5 releases that could be contemplated at a higher level, but

6 then at that instance the headquarters office of

7 Environmental Safety and Health would have to approve it.

8 Once again, ALARA would have to demonstrated.

9 GUTTMAN: There is no current federal standard for

10 volumetric release, that's what I understand, correct?

11 LILLY: We have a process, would be the best way

12 to characterize how we handle that. And it would only

13 relate to materials where we have the title and where it's

14 being done on our sites under our control.

15 GUTTMAN: What we understand is that at least --

16 and I'm not sure what DOE is doing is lawful, as we will

17 find out sooner or later.

18 But what I understand DOE is doing is they are

19 claiming they are transferring the title. It's a little bit

20 complex because the nickel, which is volumetric

21 contaminated, is classified because the transfer title

22 depends upon the declassification, in part?

23 But when they transfer basically the contaminated

24 volumetric material outside the DOE property, DOE just says

25 not our problem anymore. Then what happens is the entity

1 goes to Tennessee, say, and says, hey, Tennessee, you can do
2 whatever you want.
3 And that's what happens. So DOE is sort of
4 handing it off without any responsibility, without any
5 assertion that you can only have it at such and such a
6 level.
7 One of the issues that I think we'll now see
8 discussed within DOE is whether they can do that lawfully
9 under their regimen, which is this 5400.5, which cross
10 references the 1.86.
11 STINSON: Okay, can we move on to some other
12 points here?
13 LILLY: I would like to address one point there.
14 The requirement that we had for BNFL was that they obtain a
15 license and a regulator for how they would handle any
16 materials shipped to their site.
17 They met that requirement by getting a license for
18 the nickel with the state of Tennessee, so we did not throw
19 up our hands; we required that they demonstrate to us that
20 they had a regulatory basis to do what they have been doing.
21 STINSON: Okay, I'm conscious of the time, and
22 we're going to take five more minutes, if you're willing,
23 and wind up this part of the discussion.
24 Kristin and the Paul.
25 ERICKSON: Kristin, Michigan State University.

1 First comment: Aluminum is not an issue for most
2 academic and medical institutions. We just don't have it
3 other than little caps on our vials or something. It's
4 typically nothing for us, incidental things.
5 The second thing is a question on this 5400.5. Is
6 that one millirem per year per gram or for a whole item or
7 what, that DOE limit?
8 LILLY: This is now a DOE meeting here.
9 STINSON: Thank you. I don't think you needed to
10 state that, but --
11 LILLY: The one millirem is based upon the
12 maximally exposed. It's a dose-based analysis. It's the
13 maximally exposed individual is the scenario that's modeled
14 for that circumstance.
15 STINSON: Okay, Paul?
16 GENOA: Paul Genoa, NEI. I guess I wanted to just
17 try to help you work through the rest of the boxes, so I --
18 Again, aluminum makes it difficult. So the
19 current controls are a survey evaluation, as I discussed
20 before.
21 The premise of that is to allow for what I call
22 process knowledge, or actually what EPA calls process
23 knowledge, and what we would call an evaluation that may or
24 may not include a physical measurement.
25 So, if you don't think it's contaminated, you

1 know, legitimately, and you are willing to document that,
2 and willing to take the hit if someone questions you, you
3 don't have to actually do a physical measurement.
4 And we think that is important, and has been
5 practical.
6 The potential alternative controls are, you could
7 say that you're not allowed to release aluminum, you have to
8 save it. You could release aluminum only for disposal,
9 either in a Part 61 facility or in a landfill.
10 You could release it for disposal and/or reuse, so
11 that if you had an aluminum wrench, you could release an
12 aluminum wrench, but you could not release it into scrap for
13 recycling, or you could allow it for disposal, reuse, and
14 recycling.
15 The health and environmental impacts clearly are
16 directly linked to the allowable contamination associated
17 with the material, and since we're not willing to talk about
18 what that dose is, it's hard to assess.
19 But in the range that you're offering, which is
20 0.11 or 10 millirem annually to the maximally-exposed
21 individual, I would say that the preponderance of evidence
22 in the scientific community is that the health and
23 environmental impacts would be very small, if not
24 insignificant, inconsequential, or trivial.
25 The cost impacts are directly related to the

1 controls imposed on the licensee to monitor the material.
2 If, as my example pointed out before, if you fly from an
3 airport, you have to metal detector.
4 If it takes you 30 seconds to get through the
5 metal detector, it's not a problem. If it takes you two
6 days, people won't fly.
7 So, if the controls imposed on the measuring of
8 the material require such scrutiny and such a level of
9 forensic science that is an inordinate resource to evaluate
10 the material, our business goes down the tubes and you can
11 kiss the $400 billion in gross profits goodbye.
12 That's the worst case, and hopefully we'll come up
13 with something that's rational.
14 The type of analysis we do today which is direct
15 risking -- we also, I should say, for small tools, we can
16 use instruments called box monitors, and if we actually had
17 a standard, we could impose other automated tools.
18 Finally, the analysis needed, obviously you've
19 pointed out how much aluminum is out there, what are the
20 potential dose pathways, and what is the potential risk to
21 the public, and what are the potential radiological and
22 non-radiological impacts on society and other industries in
23 general?
24 And, finally, controls. I'm not sure what you
25 mean on that. I guess that's what level of control is

1 necessary to ensure that you meet the criteria that would be
2 established. Again, that depends on the criteria
3 established, and how hard you have to look.
4 STINSON: While you have the floor --
5 LESNICK: I was just going to ask Paul, given what
6 you said, for you, for your industry, what would be your
7 preferred alternative for control for aluminum?
8 GENOA: For aluminum, my preferred alternative
9 would be to establish a realistic pathway analysis that
10 would identify a critical group. I would establish a
11 dose-based standard for that material that would be
12 recognized by the international community as being safe,
13 trivial exposure, et cetera.
14 I would then develop -- I would pass a regulation
15 that put in place that dose limit, and then I would put in
16 place guidance documents that would determine exactly what
17 the requirements were to meet that. They probably would
18 include, I would say, a stylized list of actual
19 concentrations that we would be supposed to meet,
20 sensitivities of instruments criteria and so forth.
21 And it would be the same for a power plant as it
22 would be for a fuel cycle, as it would be for a university,
23 as it would be, ideally, for a French radiopharmaceutical
24 company.
25 LESNICK: May I ask anyone else in the group that

1 might have a different alternative for control for aluminum,
2 other than the one Paul just suggested?
3 GUTTMAN: The difference between, I guess, Paul's
4 perspective -- Dan Guttman, PACE.
5 I'm not purporting to talk about the electric
6 utility industry here, but with the DOE situation, the
7 error, the erroneous assumption in your analysis is that, in
8 fact, the standard has got some relation to what actually
9 happens in the real world.
10 To take the particularly unfortunate case we were
11 talking about, Tennessee, you've had OSHA controls for
12 workers in effect ten, 20, 30 years.
13 You had Tennessee regulating, overseeing that MSE
14 facility, and you had the Department of Energy overseeing
15 it, because they had a contract.
16 And people just kind of walk in after they award
17 this quarter-billion dollar contract to MSE and find zero
18 compliance with basic OSHA personal protective, lockout tag.
19 They weren't even looking.
20 So basically, if we look at the empirical
21 evidence, the rule of thumb assumption is that there will be
22 no relationship at the DOE between your standard and the
23 actual exposures. And there is no evidence to controvert
24 that, as far as I can tell in this particular proceeding.
25 STINSON: And I think we've heard at every

1 meeting, concerns about being able to enforce whatever
2 standard is set. It's going to be a continuing issue, and
3 certainly you bring up experience that points out why that
4 concern is there.
5 Susan?
6 LANDAHL: Susan Landahl, ComEd. I think there
7 might be some misperception out there, based on this
8 discussion with DOE and Reg Guide 1.86.
9 I just wanted to clarify that for NRC licensees,
10 at least in the nuclear power business, we don't use Reg
11 Guide 1.86. I wish we had a clear cutoff like that document
12 presents.
13 So for us, it's no detectable activity. And that
14 really is different than what I'm hearing from the DOE sites
15 in terms of what they can release.
16 We would welcome having some numerical value, but
17 we don't have that today, and we don't operate that way in
18 the nuclear utility business. Thank you.
19 STINSON: Okay, we appreciate your patience as
20 we've continued the discussion. Peter, you're trying to get
21 in right under the wire, aren't you?
22 HERNANDEZ: Just a quick question for Ms. Landahl.
23 I'm Peter Hernandez.
24 When you say that there is no detectable activity,
25 can you translate that into a DPM?

1 LANDAHL: We have some industry guidance or sort
2 of the practice that we've figured out ourselves. If I
3 could use that box monitor as an example, we might set that
4 for something less than 5,000 dpm.
5 But because of the uncertainty in the measurement
6 technique and our desire to be conservative, it might
7 actually alarm with a value of 4,000 disintegrations per
8 minute.
9 And even though that's less than what we are
10 calibrated for, set for, once we see that, once we get that
11 alarm, once we know that we have licensed activity, we now
12 treat that as radioactive material.
13 And when we have small volumes of material that we
14 can't by NRC -- while they may not be regulations but
15 certainly the way we have as an industry have interpreted
16 what the NRC has been telling us, if we have a small volume
17 of, say, an oil sample from a pump, what we do is, we put it
18 on a germanium detector which is not going to quantify the
19 volume for us, and we just look for a Cobalt-60 peak.
20 And if we can define that peak, we don't release
21 that sample. And in that case, you may be talking about
22 well, well below anything measurable by any other detection
23 device, but we've been told, no licensed material.
24 STINSON: Thank you. That was a helpful
25 clarification. Okay, let me just say that for tomorrow, you

1 kind of have a little homework for tonight, and I'm sure
2 this will thrill you.
3 If you can, take a look at this table. Think
4 through copper, concrete, soil, what kinds of materials,
5 radioactive materials we're talking about for each of these,
6 and how they're currently treated.
7 Take it across the matrix, if you will, and we'll
8 try to walk through each material in a fashion similar to
9 what we just did for aluminum. We'll do that for lead and
10 nickel and medical devices.
11 I understand that Charles Wilk will be back
12 tomorrow, so hopefully we'll get into some diverse
13 discussion on concrete.
14 We need to take public comment, and I also want to
15 find out how many people are going to be here tomorrow,
16 sitting around the table?
17 [Show of hands.]
18 STINSON: How many people have to leave before
19 3:00 tomorrow?
20 [Show of hands.]
21 STINSON: Okay, we'll see how it goes tomorrow.
22 We'll be as efficient as we can with your time, because I
23 know some people have great distances to travel.
24 Anybody from the audience want to offer any
25 thoughts on this afternoon's discussion?

1 BECHALK: I'm Christina Bechalk and I'm with
2 Collier Shannon, Rill and Scott. We're representing the
3 Metals Industry Recycling Coalition.
4 I just wanted to offer another alternative, and
5 this is for aluminum. And this would apply across the board
6 to all of the metals.
7 And we would support monitoring at the point of
8 release. This goes to the whole issue of wanting a market
9 solution and we would also support a market solution, but
10 the real issue here is cost-shifting.
11 As I understand it, the nuclear power industry
12 wants the metals industry to incur all of the costs
13 associated with monitoring and keeping the radioactivity out
14 of their mills.
15 We think that this problem is best controlled at
16 the source.
17 STINSON: Okay, thank you. Any other comments?
18 LIEB: Rob Lieb, First Energy. I came with great
19 expense to my company to be here. I have read a lot of
20 material to bring myself up to speed.
21 The materials I received about this meeting did
22 not indicate that I had to contact somebody to be a
23 participant. And I find it very frustrating to be in the
24 peanut gallery and to not be allowed, basically, all day, to
25 provide any of my own input.

1 STINSON: Are you going to be here tomorrow?

2 LIEB: Yes.

3 STINSON: Let's talk after the meeting. Are there

4 any other comments?

5 [No response.]

6 STINSON: Okay, great, thank you all for your time

7 today. We start at 8:30 in the morning tomorrow.

8 [Whereupon, at 5:20 p.m., the workshop was

9 concluded.]

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 ***

4 RELEASE OF RADIOACTIVE MATERIAL WORKSHOP

5 ***

6

7

8 Palmer House Hilton

9 State Ballroom

10 17 East Monroe Street

11 Chicago, Illinois

12 Wednesday, December 9, 1999

13

14 The Workshop commenced, pursuant to notice, at 8:37 a.m.

15

16

17

18

19

20

21

22

23

24

25

P R O C E E D I N G S

[8:37 a.m.]

STINSON: Glad you could make it back. We have adjusted the table slightly. Let me just say a little bit about our approach to today.

First of all, be forewarned that all the excitement is not over even though this is the last of the series of four meetings. I do believe we might end with a bit of a splash. I understand there might be some environmental organizations that show up later in the meeting, perhaps with banners or some such accoutrements and also statements read and again, just so everybody is apprised of the situation there, I believe that the boycott of these meetings that was pursued by the environmental community proceeds in some fashion even through this meeting so some group of folks are continuing to express their concerns about these issues through a boycott and so we may have a letter that restates some of the issues that they are concerned about.

I want to start this morning by welcoming Rob Leib to the table. He made some comments during the public comment period yesterday and was interested in joining the discussion and so Rob, would you just mention your name and affiliation and how your responsibilities relate to these issues -- to the microphone.

LEIB: Okay.

STINSON: Now you, too, can be hollered at about the microphone --

LEIB: Okay. Rob Leib. I am with First Energy. I am a Certified Health Physicist and my job at First Energy is to protect the workers and the environment from the harmful effects of radiation while allowing its use for the benefit of mankind. As such, I am concerned about proceeding with some rulemaking so that we can have some reasonable release of materials.

I would like to state categorically that there is a level

1 and that I understand from listening to all the conversation yesterday
2 that there is an awful lot of public concern and probably not as much
3 really concern about the technical aspects -- that really is a level of
4 non-concern from people familiar with the issues.
5 STINSON: Okay, great. Thank you.
6 Yesterday we had the opportunity to talk through a range of
7 issues in a more general approach and I think we got a lot of good
8 information on the record for the NRC. They have expressed that. In
9 fact, there was a lot of good information registered and it was helpful
10 to initiate the discussion material by starting with aluminum.
11 What we would like to do is continue in that vein, going
12 material by material, and we won't be able to follow the schedule that
13 is laid out here exactly because we have added a few materials, as you
14 may recall -- nickel, lead, and perhaps medical devices, although we
15 don't really have someone, I believe, from the medical industry that can
16 really speak to those issues so it would be incorporated into the -- am
17 I wrong about that? -- incorporated into the record for NRC to consider
18 further, but perhaps we wouldn't delve into it too much today. Kristin?
19 ERICKSON: Kristin Erickson, Michigan State University. I
20 can try to speak to that. We have a small amount of medical, nuclear
21 med, veterinary nuclear med, but also I interact greatly and often with
22 the 150 RSOs in our group and I will relay the need for them to comment,
23 even written, to you after this meeting.
24 STINSON: Okay, great. I was thinking of you when I said
25 that. Any questions? Opening comments? Mike, are you passing now? Go
ahead.
MATTIA: Just as a follow up on your opening comments about
the environmental representatives, I just wanted to note for the record
at the Rockville meeting a representative from the Environmental
Resource Defense Council did participate in the entire meeting and was I
think of great assistance, so I wouldn't characterize --

1 STINSON: And Western States Legal Foundation.

2 MATTIA: Pardon?

3 STINSON: And Western States Legal Foundation.

4 MATTIA: So I think that there are entities that have
5 boycotted but there are others who have participated, and I think it is
6 important to note.

7 STINSON: Yes. That is the way that I meant to state it, by
8 saying that the groups -- that there is a boycott that some have chosen
9 to participate in and express their views through that boycott, but not
10 everyone, and we also understand that a lot of folks will be submitting
11 written comments boycott or no, so Tony?

12 LaMASTRA: Tony LaMastra, AISI. Just wanted to make a
13 couple comments on some comments that were made yesterday towards the
14 end, not so much for the elucidation of the NRC, because I think we have
15 made them in the past, but perhaps some of the people at the table who
16 haven't been to the other meetings and one was, what I heard expressed
17 was again this idea that steel was inherently radioactive, and it really
18 isn't.

19 I guess if you want to start counting atoms and down to, you
20 know, 10 to the third, 10 to the fourth picacuries per gram, but from
21 data that we have looked at the basic steel as it is made is very
22 difficult to find any radioactivity in it.

23 STINSON: Why don't we try to take that up specifically when
24 we get into a discussion on steel today?

25 LaMASTRA: Okay.

STINSON: Because we have heard varying viewpoints on that
point in these meetings.

LaMASTRA: All right. The other I guess is a general idea,
and it bothers me that in a sense the nuclear industry and also the NRC
kind of go along with the idea that using the term "non-detectable" when
in fact you are really meaning something less than 5,000 DPM per hundred

1 square centimeters. As a Health Physicist, that is detectable. I don't
2 care if it is less than 5,000, less than 4,000, less than 2,500 DPM, it
3 is detectable. A good surveyor with a proper instrument can see a
4 definite increase above background, and I think we ought to stop using
5 this concept that we are releasing stuff that is not detectable because
6 you are.
7 When you look at what is possibly being released either
8 under 1.86 or under -- if you take the guidelines in NUREG-1640, many of
9 the gamma emitters released at those levels in relatively small
10 quantities a couple tons in a load of scrap, will be detectable using
11 today's modern scrap detectors, so if you are under this idea that
12 releasing it at whatever -- 3,000, 2,000 -- is something that is not
13 going to be detected by the industry, please be advised that it will be
14 and it will cause alarms and it will cause rejections.
15 STINSON: It looks to me like folks want to pursue this
16 topic just a little bit, so Paul, do you want to follow, and then
17 Kristin?
18 GENOA: Yes, good morning. I am Paul Genoa, Nuclear Energy
19 Institute, and Tony's comments go to the heart of one element of the
20 issue, which is detection of gamma emitters, which is a pretty
21 straightforward process, but it ignores the vast majority of
22 radioisotopes that are not gamma emitters.
23 You are not going to see Carbon-14. You are not going to
24 see tritium. You are not going to see Iron-55. You are not going to
25 see any of those isotopes under that technology, so the technology that
is being used by the steel industry to protect them from orphan sources
is one issue, but the release of materials from facilities that may be
clean and need a standard to verify or to use for sorting is another
issue. I would like to talk more about that issue sometime today.
STINSON: Kristin?
ERICKSON: Kristin Erickson, Michigan State University.

1 I appreciate the comments but I respectfully disagree with
2 both of what they have just said. That may be true for some facilities,
3 some technology, but Michigan State and at most institutions of our
4 type, we are going down to background or less than background on the
5 proper calibrated instrument.
6 To release ash, for example, we are going to the MPC
7 program, which is 10 to the minus fifth levels even for Carbon-14, and
8 you can detect those with a good Ludlam Geiger counter. You can
9 calibrate for that. You get about 5 percent efficiency. You correct
10 for your DPMs, geometry, et cetera.
11 You look at the attenuation of the volume -- as I said,
12 about a drum of metal, we have gamma spectroscopy for those gammas and
13 we can detect extremely low things because we have to. Same for even
14 releasing a pipettor or our lead that I went through a couple of weeks
15 ago, tons and tons of lead, right down to the background, looking at
16 within the statistical standard error or the means for the background.
17 On some of those cases we have to go far beneath that -- Iodine-125 ash
18 we are looking for less than 2 DPM. We prove, we see it with NIST
19 certified standards, spiking the ash, et cetera. We have got
20 procedures for that.
21 So those technologies with common instruments are capable --
22 are available to be done, although it is a misperception in many
23 institutions that you can't see C-14 or P-33 or some of the lower energy
24 isotopes. Tritium you don't see with a Geiger counter but we use liquid
25 scintillation techniques, again getting very, very low like that. Thank
you.
STINSON: Okay. This is helpful -- bringing information
forward in terms of your experience and the materials that you work with
and equipment that you work with is I think very helpful to the NRC --
part of what they are looking for. Tony and then Mike.
LaMASTRA: Just as a followup -- Tony LaMastra -- as a

1 followup to Paul's comment. I think the metals industry is well aware
2 of the fact that it is very difficult to detect beta alpha emitters and
3 they definitely don't make any pretense that they are doing that, but I
4 think what we have a problem with is the use of the term
5 "non-detectable" and when good science shows that it is detectable and
6 the continuing using of that term makes it sound like you are releasing
7 stuff like the materials licensees down to some, you know, really
8 non-detectable level.
9 STINSON: Tony, do you have any solutions for that? Do you
10 have any alternative terminology acceptable to the industry? Not that
11 we are going to try to turn over the terminology in the industry right
12 now but --
13 LaMASTRA: Yes, basically state that you are less than some
14 DPM per 100 square centimeters. Admit that you are releasing something
15 that is detectable. If it is a standard, if it is acceptable, fine,
16 but, you know --
17 STINSON: Okay. We are going to take about another five
18 minutes on this topic. I am seeing Steve Klementowicz standing. Do you
19 want to come up here, Steve, and take a seat with us, if you will -- we
20 have your card here somewhere.
21 KLEMENTOWICZ: Steve Klementowicz, NRC. I would like to
22 respond to Tony's comments.
23 Regarding the use of the term "no detectable" we essentially
24 have to use that in the power reactor space because there are no release
25 limits. This is something that has been put forward in the absence of
release limits since 1981. We have a circular that addresses how hard
you have to look and it essentially equates to the 5,000 DPM, but again
since there are no release limits we tell licensees how hard you have to
look and therefore it becomes "no detectable" -- if you look that hard
and do not see anything.
We realize with the scientific technology you can look lower

1 and lower and lower, but in the absence of a rule we have no release
2 limits, so until we have a national standard, be it zero or whatever
3 value, we are locked into this, otherwise we would be establish a limit
4 without going through a rulemaking process.
5 STINSON: That is helpful.
6 KLEMENTOWICZ: So we are kind of stuck.
7 STINSON: That is helpful, hopefully illuminating some of
8 the struggle with this issue. Mike, and then I am going to jump to
9 Steve, if you don't mind, Paul, just to let him weigh in here.
10 MATTIA: I would like to take the opportunity and ask
11 Kristin, because I could use the education, other than medical waste,
12 what kind of material that still has some residual radioactivity is
13 being released from health care or research facilities that is what you
14 would consider recyclable or reusable?
15 ERICKSON: Well, the common thing would be lead shielding.
16 We get the materials inside of a lead container of some sort or the
17 shielding itself inside of a scintillation counter. We also have a lot
18 of inherited lead waste, those ancient, huge three inch thick lead boxes
19 and so forth -- that is one category -- and then we have, well, let's
20 see -- were you talking medical only, were you asking? Any academic?
21 Okay.
22 Well, we have an accelerator and our accelerator activates
23 materials, so even the Geiger counter that they left in the vault one
24 time came out radioactive for a few days, so everything from tools to
25 the beam lines to any parts that are in there, screws, nuts, bolts, all
of that stuff we have controlled in a room where there are drawers and
they can't even take a screw out of there without checking it with our
instruments -- so that is another kind of waste.
Then there is a typical what I call biomedical R&D, research
and development, type of waste out of our research labs which contain
typically paper, plastic gloves but can also contain glass stock bottles

1 and lead containers for those, sometimes small pieces of metal.

2 We have one lab there that has soil because that is what

3 they do the research on, so it can really range a little bit of

4 everything and a lot of some things in a big university like ours.

5 STINSON: Any substantial amount of copper?

6 ERICKSON: Well, right now I have several tons of copper

7 that I am going to free release on Friday, hopefully.

8 STINSON: Good. Well we will turn immediately to you --

9 ERICKSON: They sent it to us as storage material and it

10 probably is not hot. It was part of a cyclotron that they took apart

11 and it is a one-time thing but it is tons, really tons of copper, so we

12 have a lot of odd things in our institution. Thank you.

13 STINSON: Okay. Steve Collins.

14 COLLINS: Steve Collins, from the Illinois Department of

15 Nuclear Safety -- mostly in agreement with the comments made about the

16 use of the term non-detectable. Any time we use that, and we do

17 occasionally use "non-detectable" or "not statistically different from

18 background" we always when we use that make sure that we have defined

19 the instrumentation used and the confidence limits with which are

20 talking -- otherwise it is so vague that you can't tell what you are

21 talking about.

22 STINSON: Paul and then Tony.

23 GENOA: Paul Genoa, NEI -- and I just wanted to correct a

24 misimpression.

25 What I was saying is that a portal monitor based system at a

steel yard is not going to see those other things, but as Kristin was

saying, we do have the technology to detect very small amounts of

radioactive material, but the difficulty and the resources needed to

check lower and lower and lower, closer and closer to zero becomes

exponentially higher and that is the same idea that I was trying to

convey with the idea of going through the airport metal detector.

1 You know, we are all willing to sit there for 30 seconds or
2 a minute or a couple minutes to protect the safety, but if it gets into
3 days and weeks to prove that you don't have metal on you, it is just not
4 an effective tool anymore and the industry goes away.
5 You can spend an inordinate amount of resource trying to get
6 to those levels, you know. The detection is based on the
7 instrumentation. It is based on the volume of the material, and it is
8 based on the length of time you count so you can count infinitely long
9 if you need to. Obviously that is not practical, so a clear, consistent
10 standard would help define exactly what conditions you have to impose on
11 the counting of various materials.
12 LAMASTRA: Tony Lamastra. I guess what bothers me is the concept of the
13 double standard.
14 The NRC is saying that they don't have guidelines for the
15 nuclear power industry, and that, therefore, the nuclear power industry
16 has a certain effort that they have to put forth to find something.
17 If a reactor releases a piece of metal that has, let's say
18 2,000 dpm per 100 square centimeters on it, and it sets off an alarm at
19 a mill, it goes back, and there's nothing really done about it.
20 If Kristin releases some absorbent towels with 2,000 dpm, it
21 goes to a landfill, it gets discovered, she gets fined.
22 To me, that doesn't make any sense.
23 STINSON: And I think you're getting at an issue that is a
24 little bit at the heart of some of the misunderstandings, or at least
25 ways in which people are crossways on this issue.
I have heard differences of view on this that reflect Tony's
and others. Do you all want to pursue this a little bit? Is it
valuable to understand?
LAMASTRA: We have to clear up a misperception.
STINSON: We can do that. I just want to be sure that you
all are all behind pursuing this discussion a little bit, and then

1 getting on with the material-by-material.

2 We'll give you guys a chance to clarify Ton's point.

3 Kelly, do you have something related to this, or are you

4 going to take us in a wholly different direction?

5 CROOKS: No, it's related. Kelly Crooks, U.S. Army. Dave

6 and I have kind of stayed out of the discussion so far, just because

7 it's pretty much all centered in metals and we just don't generate a

8 whole lot of contaminated metal.

9 In our real-world experience with at least

10 surface-contaminated metals, we found, at least for our typical waste

11 streams, that it's not worth the effort to decontaminate the metals and

12 then verify that they're clean.

13 It's cheaper just to go ahead and dispose of them. And some

14 of the thoughts I had, listening to the very good discussions from

15 yesterday -- but I really wondered, when you're talking a limit of one

16 millirem per year, you know, what would that equate to in terms of the

17 concentration limit?

18 I'm guessing it would be fractions of a picocurie per gram.

19 Again, getting back to the real-world scenario, I'm thinking that at a

20 typical Army installation, how would we grab a representative sample of

21 the material?

22 Who could we send that sample to, to have it read to verify

23 that we've met that fraction of a picocurie per gram limit? How long

24 would it take; what would it cost to do that kind of sophisticated

25 sample analysis?

Then, of course, at the very end is, is it worth it, versus just disposing of it right from the get-go?

So that's just kind of our perspective from an institution that has a lot of generators spread out over hundreds of installation that maybe don't have big volume waste streams at any one, but have a lot of little ones.

1 STINSON: Okay, thanks, Bill, for letting him jump in there.

2 LIPTON: Bill Lipton, Detroit Edison. I want to build on
3 what Susan said yesterday. There is a big difference between
4 undetectable with an LLD of like 5,000 dpm or so many microcuries per
5 gram, and saying less than 5,000 dpm or less than so many microcuries
6 per gram.

7 If you -- that LLD is the 95 percent -- generally taken as a
8 95-percent probability, meaning if it's less than that LLD, you know,
9 maybe you only have an 90-percent change or an 80-percent chance, but
10 you're still likely to detect it.

11 And if you detect it, then it doesn't get released.

12 The second thing is that we use a system similar to what
13 Susan described as used at Commonwealth Edison, and I have found, in
14 general, one thing is that we only evaluate for free-release materials
15 which we would presume to be clean, which have by their history of use,
16 have not come into contact with contamination, but have been in our
17 restricted area.

18 And we're just confirming the absence of material. I find,
19 generally, that you find very few borderline cases.

20 If we detect something, generally it's way above any
21 detection limit. It's very rarely that you find activity that's right
22 at the detection limit or just above it. If we find something, there is
23 usually no doubt about it.

24 So I find the materials that are being evaluated are not
25 really a continuum, but it's more a dichotomy. You have the clean
materials, and then you have the materials which generally are
contaminated way above the established detection limits.

STINSON: Tom, and then Steve. You need the microphone.

CIVIC: Tom Civic from AISI. I wanted to respond to Paul
Genoa's comment regarding the backlog at the x-ray machines at airports.

And mainly because I think this issue of passing on the

1 detection to the downstream user is not an acceptable solution, either.
2 It does take time to run every piece of steel through a scrap monitor.
3 You can go see the trucks and the rail cars backed up,
4 running them through detectors to ensure that the radioactive materials
5 are not present.
6 If the steel industry can do, then it ought be done with
7 that same degree of proficiency at the sources as well in terms of
8 backlog, at least for certain materials.
9 STINSON: Steve?
10 MR. KLEMENTOWICZ: Steve Klementowicz, addressing the
11 no-detectable issue: This no-detectable issue, as we can see, is very
12 complicated and complex.
13 But let me clarify that the NRC does have guidance, and
14 that's Circular 81-07, and the followup information notice, 85-92.
15 In Circular 8107, it specifically uses the value of 5,000
16 dpm per 100 centimeters squared, which over our discussions here, is
17 equivalent to what is in Regulatory Guide 1.86.
18 But again, for power reactors, since they do not have
19 release limits in their license, other materials licensees do have Reg
20 Guide 1.86 values as release limits; however reactors never got that
21 option.
22 There was always some hope that the NRC would develop a
23 release standard, and that's never happened. So what we're left with is
24 this no-detectable. We establish how hard you have to look, we call
25 that no-detectable below that, and there is a liability.
If a licensee releases a material using that survey and says
it's no-detectable, and it's released, if that licensed material is
found by someone else using more sophisticated instrumentation, the
licensee that released the material is cited. That is a violation
against Part 20.
Licensed radioactive material was not controlled, it was

1 inappropriately released. There are no release limits in Part 20, so we
2 go through this vicious circle. So it drives the detection.
3 What it is doing is driving the detection capabilities lower
4 for the reactor industry. So what you may hear from some power reactors
5 is that they are doing better surveys using more sophisticated
6 instrumentation than the old guidance said that you should do.
7 So what we have is the technology-based standard. So when I
8 say no-detectable, that could be all over the place from 5,000 dpm down
9 to people using gamma spec systems to extremely low levels.
10 But again, if someone comes in with a more sensitive
11 instrument and does a survey, the licensee that released the material is
12 cited against Part 20. And this has happened many times, many, many
13 times.
14 And that's a problem. It's a technology-based standard
15 right now with no lower threshold, and that's the gap.
16 STINSON: And from wnat I understand it's a lot of the
17 reason why this rulemaking is under consideration, right there.
18 I know that we have a couple people that want to make
19 comments. If you don't mind, Kristin, let's wind this subject up, and
20 let Paul and Peter make a couple comments.
21 Paul? You're on this issue, right?
22 GENOA: Yes. And, again, we fully believe -- Paul Genoa,
23 NEI. We fully believe that we need to monitor at the source. We do
24 monitor at the source, and our detection capabilities exceed yours,
25 because of the geometry that we use. So we're not expecting you to
catch our mistakes.
And the truth is that you're not monitoring because of us;
you're monitoring of non-licensed users of radioactive material sources
that have let them escape.
They didn't come from the nuclear industry, generally. So
we do take the responsibility to sort our materials. We have very rigid

1 standards, very systematically -- and we have intense oversight by a
2 regulator. They live on our property.
3 STINSON: Peter and then Robb.
4 HERNANDEZ: Peter Hernandez, AISI. I believe that the point
5 Tony was making is that from a practical standpoint, the 5,000 dpm, even
6 though it may be part of a regulatory paradigm, is not going to be -- is
7 not going to prevent the material from being rejected at metal melting
8 facilities.
9 The detection equipment, and that the real detection levels
10 are about half that in these mills. The detection equipment was put in
11 place, as Paul indicated, to try to detect these orphan sources, but
12 they also are used to reject NORM and any other material that is above
13 the detection limit of these instruments.
14 That includes materials that may have come from any facility
15 that may be contaminated above the background level. The other thing
16 that we've learned is that -- well, I'll hold the rest of my comments
17 till the steel segment.
18 STINSON: Okay, that would be great, thanks. Robb?
19 LIEB: Robb Lieb, First Energy. I have a couple of things,
20 one technical, one on perspective. I keep getting back to this
21 perspective issue. I think it's the most difficult thing that I see for
22 the rest of my career to deal with.
23 At nuclear power plants, we not only monitor materials and
24 equipment to the detection limit of 5,000 dpm per 100 centimeters
25 squared, but we also monitor personnel to that level.
To date, we have had no deaths in the commercial nuclear
power industry from contamination, from exposures to external dose, or
any other radiological reasons.
On the other hand, for perspective -- and we need to get a
reality check here on perspective. There over 800 deaths per week in
traffic accidents in this country.

1 Now, I'd appreciate some suggestions on how to get the
2 public to understand the risks we're really talking about here. We're
3 really not talking about significant risk from radiation when we release
4 items at the detection levels of the current guidance.
5 On the other hand, I think that the question Tony and Peter
6 were talking about with detection levels, we need to address what the
7 monitors are set for as far as capability for detection.
8 I don't really understand why they are set the way they are.
9 Maybe separately we could talk about that.
10 STINSON: Okay, Frank, you wanted to reflect on something
11 that Tom said. Do you still want to?
12 CARDILE: Yes, it just had a quick clarification. If we
13 were to go back to the -- you made the point about -- and I think the
14 point has been made a couple of times about NRC trying to pass the
15 problem down to the steel industry, or the steel industry having to do
16 their own reviews, et cetera.
17 If you go back to the slide that we put up yesterday with
18 the flow diagram, no material, as Steve just talked about, and I think
19 Paul also talked about, no material leaves.
20 If NRC put out a rule about what the standard -- say, for
21 example, a millirem -- no material would leave the NRC licensed facility
22 without the survey at that point to verify that the material had met
23 this standard.
24 So the idea is that -- so they would have surveyed that
25 material to make sure that it met the standard, and not pass it on to
the steel industry.
Now, the point was made, kind of interestingly, here a
moment ago, that while the steel industry has its detectors in there to
look for orphan sources, and it rejects a variety of things at very low
levels, I guess my question, perhaps, back to the steel industry would
be, if NRC had a standard, if we put out this standard, and if there was

1 a survey when the stuff left the site at a level like a millirem, which
2 is still a millirem above background, you know, would the detectors at
3 the steel industry go off, and would the steel industry reject that
4 material that NRC had said, okay, this is safe? It meets our standard.
5 STINSON: Frank, if you don't mind, at this point, since you
6 offered, Peter, to take this discussion into the steel session, I'm
7 going to ask us to hold that question. That's a great way to initiate
8 the steel discussion.
9 And just to be sure that we don't again focus exclusively on
10 steel during one of these meetings, I'm going to ask us to take a breath
11 here and shift to copper. Is that okay with you?
12 There are a number of good issues that have been t'd up for
13 further discussion on steel, an Peter has one he's going to raise as
14 well.
15 CARDILE: Although, Barbara, I would ask, as we discuss all
16 the materials, including trash that goes to the landfill, the same
17 question holds. If NRC said, all right, this trash is okay at a
18 millirem, and it went to a landfill, would the landfill detectors say,
19 please see it, it's above background, get it out of here, send it back?
20 STINSON: Yes, that's a good point.
21 LAMASTRA: Could I just make a comment on that, in general?
22 Tony Lamastra.
23 Frank, the capability of today's scrap monitors, which is
24 also transferred over into disposal site monitors, landfills,
25 incinerators, although they tend to use smaller volumes of detectors,
have extremely low capability -- low sensitive -- not low sensitivity,
high sensitivity.
And, again, just forget the fact that they can detect beta
and alpha. At the concentration levels in NUREG 1640, assuming about
five tons of material that's contaminated not at 5,000, but at 4,000 dpm
per 100 square centimeters, or at a lower level in the volumetric.

1 You're looking at Sodium-22, Potassium-40, Manganese-54,
2 Cobalt-60, Molybdenum-93, Niobian-93M, 94, Silver-108M, Antimony-125,
3 Barium-133, Cesium-134, 137, the three Europeans in NUREG 1640,
4 Radium-226, and its daughters, 228 --
5 STINSON: How long is your list, Tony?
6 LAMASTRA: Just one more. Practinium.
7 STINSON: We really wanted to reserve the steel discussion
8 for later.
9 LAMASTRA: No, this isn't steel.
10 STINSON: Well, I understand, but you're also focusing on
11 your own volumes, et cetera. Do you want -- I mean, do you mind if we
12 save this part of this?
13 LAMASTRA: Basically, you're looking at a detection system
14 that has the capability of finding material at that one millirem per
15 year. So, yes, to answer your question, yes.
16 CARDILE: You would send it back?
17 LAMASTRA: Oh, definitely, if it alarms. No -- very few
18 people are rooting through the loads, and it would go back, yes.
19 STINSON: Detecting all of those materials that you just
20 listed.
21 LAMASTRA: Whatever it is that causes the alarm, the plant
22 is not going to try and find out what it was. It caused an alarm; it's
23 going back.
24 STINSON: Bob, you have a card up here if you want to come
25 join us. Charles are you on this point, or do you want to take us into
copper?
WILK: Before we go into copper, this is a question
concerning procedures. I should have asked this perhaps yesterday.
This is Charles Wilk from Portland Cement Association. The
comments that you're taking into, that you're recording and transcribing
in the past two days, do these become part of the administrative record?

1 And if they do, do they become responded to in a response to
2 comments in proposed rulemaking, or the final rule that comes out? Are
3 the questions and responses to the questions published in the Federal
4 Register?
5 COOL: You really have to swallow this one. I hope you
6 don't have a cold, Barbara. The answer to both of those questions is
7 yes, if we get to the point where we have a Federal Register.
8 First of all, these are being transcribed, and these
9 documents will be public and part of the administrative record. Part of
10 what my next step is -- and we are going to talk about this a little bit
11 later -- is to provide all of this information to the Commissioners so
12 that they can consider what the next step should be.
13 We will certainly characterize these comments to the
14 Commission as part of that. We will not attempt, on a
15 comment-by-comment basis, to try and provide a response in preparing
16 that document for the Commissioners.
17 That would be something that we really wouldn't be able to
18 do in the timeframe that we have. However, they continue to be part of
19 the record, and should the Commission direct us to move forward, then we
20 would, at least in general terms, category-by-category, topic-by-topic,
21 need to look at this information in preparing our Federal Register
22 notice.
23 So if you're looking to the specific answer to the specific
24 question raised by X-participant in meeting number 3, no, I'm probably
25 not going to be able to show you a specific line item in a Federal
Register that enumerates it in that detail.
However, it would be our intention to try and deal with all
of the types of comments and the assertions made as part of a Register,
if we get to that point in the process.
WILK: So, I understand, what you mean by dealing with these
questions, would you -- I understand that process that you would want to

1 group questions that are similar.

2 What I'm asking is, within the Federal Register -- if there

3 is eventually a Federal Register notice that's published about the

4 plans, would there be responses from the NRC to each of the specific --

5 the generalized questions, or the groups of questions?

6 STINSON: Yes, so there would be general groups of issues

7 raised by participants that led the NRC to make the decision that they

8 make in this, so there will be the answers to those that hopefully form

9 a logic train.

10 WILK: And then the NRC would say why they found those

11 comments persuasive, or why they were not persuasive. Okay, thank you.

12 STINSON: Bob, we're going to ask you to hold, if you're

13 going to make further comments on Tony's and Frank's discussion. We're

14 going to ask you to hold that to the steel.

15 Is it something else? I'm going to ask first that you wait.

16 MECK: That's not the nature of the comment. I have an

17 overarching thing that may help the discussion across all materials.

18 STINSON: Okay, great.

19 But first we'll turn and let you -- can you --

20 CARDWELL: This is a response to Frank's -- Cindy Cardwell,

21 State of Texas OAS.

22 And it's a response to your question, Frank, and it does

23 cross all lines. It's not just the metals. It's going to apply to

24 soil, trash, construction debris.

25 From a state perspective, the answer to the question is will

they reject it, and they being landfills, scrap yards, steel mills; the

answer is yes.

And that is not only when those hits occur will the

locations reject it, but typically a state inspector will respond in

some form or fashion.

So you're looking at state regulatory resources being used

1 for those hits, and that experience goes for materials that are
2 contaminated above background, because that's typically where the
3 detectors are set, and I'll point to those states -- and there are many
4 of them that have NORM standards in place right now.
5 They're also looking, in addition to those generally
6 licensed gauges, orphan sources that are out there, they're looking for
7 NORM. So they are set at background, and even though our NORM limits in
8 most of the states are above that at some level, they will reject the
9 loads.
10 It is rare for them to sort through a load.
11 CARDILE: Just for clarification, if NRC -- Frank Cardile,
12 NRC.
13 If NRC proceeded and did a rulemaking and had a level at a
14 level slightly above background like a NORM, there is a potential that
15 material that was released from the licensed facilities would be
16 rejected at these various locations?
17 CARDWELL: That's a very good potential, based on our
18 experience in the states. I will speak for Texas now. We consistently
19 get phone calls from companies and facilities that have released NORM
20 materials, in particular, because we do have levels for NORM that are
21 definitely above background.
22 And they say that we've done all the tests, they meet your
23 exemption levels, the facility -- it set their alarm off, and they won't
24 take it, and we have to tell them that that is their right to reject it.
25 STINSON: Thank you. Bob, and then Robb.
MECK: Bob Meck, Nuclear Regulatory Commission. A
distinction of roles, I think may help the overall discussion here.
If you consider the role of the Nuclear Regulatory
Commission to be protecting, providing protection, adequate protection
for public health and the environment, then the question about alarms
and other considerations may fall into more the economic and marketplace

1 consideration.

2 And a construct that may be helpful in this is that the NRC

3 needs to, in considering alternatives, regulatory alternatives, take

4 into account, economics into the cost/benefit analysis.

5 So there is an overlap between economics and the regulatory

6 role of the NRC. On the other hand, I don't believe it's the NRC's role

7 to drive economics, and the marketplace should sort that out.

8 So, the circumstance could be that the NRC would find and

9 promulgate a regulation that is protective of the public and the

10 environment, and yet those levels that are protective may well set off

11 alarms.

12 And the question is then, is this an economic concern and a

13 specification of feedstock specification for industry that the NRC

14 should not be investigating? Thank you.

15 STINSON: Robb?

16 MR. LEIB: Robb Leib, First Energy. This is directed toward

17 Cindy. In your experience, have the alarm limits at the scrap yards

18 been set at a reasonable level? Is there a program that helps the scrap

19 yards to determine what the detection levels should be set at?

20 STINSON: You said they're set at background.

21 CARDWELL: Our experience is that they set them at

22 background, and typically it's the company from which they buy their

23 detection equipment that comes in and does their calibration and sets

24 their machines for them.

25 And we -- I can only speak for Texas now because I don't

know the answer to the question for the other states that I'm here

representing today. We don't necessarily give them any guidance as to

what levels they should set their detection equipment at.

STINSON: That was Cindy Cardwell. Cards are just going up.

Let's give a couple others chances to respond.

Steve, and then Alice.

1 COLLINS: Okay, the question specifically was about
2 detection limits and the settings at scrap yards. Our experience in
3 Illinois is that a lot of the scrap yards have them set at a small
4 percent of the variation in the local background, not something equal to
5 background.
6 If the background just varies, so every time it rains in
7 northern Illinois, the alarms start going on because of the radon
8 perking out of the soil at some of the places. They'll get a hit on a
9 truck going by, and they have to go back and recheck that.
10 STINSON: Just move that mike a little bit closer.
11 COLLINS: They have to go back and recheck that vehicle two
12 or three times to make sure that there really might be something in the
13 load.
14 And then if we get called like we hope we do, then we have
15 to go up and figure out exactly what's in that load and about how much.
16 And if they want some assistance in getting it sorted, we
17 even assist in doing that.
18 STINSON: Alice? That was Steve Collins.
19 ROGERS: Alice Rogers, Texas Natural Resources Conservation
20 Commission.
21 Several of our commercial hazardous waste disposal
22 facilities, both incinerators and landfills, have in their waste
23 analysis plan that's incorporated into their regular permits, that those
24 detection monitors are set at twice background.
25 STINSON: Okay, good, that's helpful. We have the attention
of the steel and scrap industry, I think.
Mike, Tony, and then Tom.
MATTIA: If I could look in the crystal ball at what's going
to be happening in terms of detection, specifically at scrap recycling
facilities, I think we can see that even the concept of background is
going to go by the wayside.

1 We've had a number of instances where a scrap yard that
2 maybe has a background of, let's say, hypothetically, 20-30-40, is
3 shipping to a mill whose background is half that. And so something gets
4 missed at the yard, it goes to the steel mill and gets rejected.
5 What we're seeing, number one, is a move, and because of
6 pressure from the industry to the manufacturers of the equipment, is to
7 start to isolate the area around, in many cases, the scale, so you in
8 essence have background almost neutralized within that zone where the
9 truck moves through, so that they're actually detecting exactly what's
10 coming out of the vehicle.
11 We're also now seeing that there's a grapple that gets the
12 detector almost on top of the material, and we're going to soon, I
13 understand, going to have a magnet that's going to have the detector
14 built in that will even get the detecting surface closer to the
15 material.
16 Detectors are being put even closer on the conveyor lines so
17 that even the concept of background is starting slowly to fade away, and
18 we're detecting exactly what's coming out of the material or out of the
19 truck that's shielding the material.
20 STINSON: Tony?
21 LAMASTRA: Tony Lamastra. In a sense, speaking as a
22 consultant Health Physicist, one, to answer Robb's questions, why so
23 low?
24 Paul kind of indicated, Paul Genoa, indicated why. And
25 that's because of the sealed source threat that can essentially shut
down a mill, cost it many millions of dollars to clean up.
But to answer your question of how, in a sense, what they
can detect, how they work, the better systems, first, are large volume
plastic. They have no spectral capability.
As a vehicle approaches the monitoring station, you'll see
about a 30-percent reduction in ambient background. Most of the systems

1 today have the capability of setting an alarm point at somewhere.

2 If you really want to push it, you can get to about three

3 percent above background, above that suppressed background. But

4 typically you're looking at somewhere in the range of six, eight percent

5 above the suppressed background.

6 What you have to realize, from an instrumentation viewpoint,

7 is that the false alarm, the real false alarm read is extremely low, to

8 the point where I can think of maybe -- in one facility, I can think of

9 maybe two false alarms in five years, two real false alarms.

10 What you will see is NORM in the bottom of the vehicle

11 setting it off, a poor distribution of the load where you have a void,

12 let's say, in the center. All the instrument is doing is recording

13 counts per, in some cases, a tenth of a second.

14 And as it hits that void, the background goes up, the

15 background hits the other hump, the background goes down, the instrument

16 says, ah-hah, I've found radiation.

17 So, that, to me, would be a real false alarm. But, yes, the

18 equipment has the ability, easily six to eight percent above background

19 with, like I said, an extremely low false alarm rate.

20 STINSON: Okay, thank you. Let's wind this discussion up

21 and move on to copper before we run out of time to get through all our

22 materials.

23 Tom, real quick?

24 CIVIC: Tom Civic from AISI. Tony Lamastra covered one of

25 the main points that I wanted to discuss about the reason why the

monitors are set so low.

However, the other issue that we need to be aware of in dealing with responses to alarms at these sites, whether they're downstream users of landfills or steel plants, we are not sophisticated Health Physicists that have to respond to these alarms.

The survey techniques to isolate and separate materials that

1 could be potentially hazardous to employees that have to deal with it,
2 is a real problem.
3 So, the response to send materials back to where it came
4 from, is very real, and it's not done for selfish reasons. We just
5 can't take the risk of screwing up and exposing individuals. That's not
6 their strength. Their job is to handle materials and process materials.
7 That's what they're there to do, and not to guard against radiation
8 hazards.
9 So that's a very important point, I think, that the NRC
10 needs to keep in mind.
11 The other point, again, we have to keep going over and over
12 and over and emphasizing is that the metals industry does not want the
13 material. And most of the people around the table are saying there is
14 no economic benefit to them to release the materials to be recycled
15 where it can get into consumer products.
16 So, let's just keep that in mind in any type of rulemaking
17 that's going on, and consider the economics as a very strong driving
18 force here in addition to the health and safety that's could be affected
19 downstream, not necessarily because it's a released material, but you
20 jeopardize the measures that are in place by putting all these materials
21 out there that are just going to cause more confusion.
22 STINSON: Okay. Trish, as a quick follow-on and then we're
23 going to
24 HOLAHAN: Trish Holahan, NRC. I just want to clarify -- or
25 ask Tom to follow up on that. And perhaps as we walk through the table,
if there are some materials, that there is perhaps a benefit, in terms
of costs or economics and in terms of recycling, and I'll use copper as
an example, is perhaps on those and, as we walk through the table, if we
could look at unique impacts or benefits from certain materials.
I think we've heard that from the steel industry, that
perhaps there may not be for steel. But, I guess I'm asking the

1 question: are there some that perhaps there may be, in terms of
2 recycling, for other metals.
3 STINSON: Rob, we're going to let you wind up this
4 discussion. Where we're going to move next, just to prime people for
5 our -- the rest of our morning discussion, is to talk about copper, in
6 particular. So, if you have any specific experience with a volume of
7 copper, such as what Kristin raised -- what we'll do is you can see
8 we're starting a table for each item and Giorgio is diligently trying to
9 record the general topics and discussion that go on for each of the
10 major materials. And what we want to talk first about is getting some
11 experience with controlling the material currently, what our folks --
12 what kind of detectors are they using; what kind of volumes are they
13 experiencing; is it mixed; it is pure; where does it go, etc. So, be
14 thinking about that.
15 We'll let Rob make his final comments and then move to that
16 discussion.
17 LEIB: Thank you. Rob Leib, First Energy. Tom, there's two
18 points that you raised. First, I used to be -- before I got into
19 learning about radiation, I was very antinuclear and your point about --
20 you know, raises a thing about perception again, that you guys don't
21 want this recycled materials --
22 STINSON: Stay close to your mic, Rob, sorry.
23 LEIB: You just don't want the recycled materials from
24 nuclear facilities and there's no economic benefit. One of the things I
25 learned, as I study more and more about radiation, when I was working
for an anthropologist, doing studies of fetal alcohol syndrome,
radiation is a huge benefit to society.
And then just to switch over to something that might benefit
you is that 20 percent of electricity in this country comes from nuclear
-- commercial nuclear power plants. And when we can't get rid of our
materials, that drives up the cost and reduces the potential for us to

1 continue operating, which would eventually make you rely on electricity
2 from the remaining 80 percent of the suppliers. And as you can see,
3 your costs for arc machines and so forth are going to go up. So, there
4 is a direct benefit, I believe, to the metals industry of supporting
5 getting rid of materials from nuclear facilities that do not cause any
6 harm to your employees or the public.
7 STINSON: Okay. Let's move to our discussion on copper.
8 Kristin, maybe you can kick us off with some further description of your
9 several tons of copper that you are now dealing with.
10 ERICKSON: Yes. Kristin Erickson, Michigan State
11 University. Although copper is a really uncommon waste in typical
12 academic --
13 STINSON: Can we keep the discussion focused at the table,
14 please, gentlemen? Thanks.
15 ERICKSON: It's typically not a big problem at most academic
16 and medical institutions. But, because we have a huge accelerator, in
17 fact, the biggest cyclotron of its type in the world and now we're
18 getting bigger, we have this waste. The history is they built one
19 machine they call the K-50 and then there was the K-500, then the
20 K-1200, and now we're putting them together to make a K-1900. We're
21 talking major energies. And when they do that, some of the old
22 machines, which are huge amounts of copper -- because these are
23 superconducting cyclotron, they use winding copper coils and it's
24 literally tons and tons of this big huge equipment with up to a 12- or
25 15-foot diameter.
The copper that we have to deal with is from the cyclotron,
not from our typical research labs. And it's two types: one is the
type that I mentioned, the big part of the machine; the other type is
copper in electronic parts, which is a more common problem for any place
such as perhaps the Army or other places where they're taking things and
buildings and so forth apart or machines.

1 The copper, in itself, as an activated product, is not
2 really a problem and I don't think it should be for anyone, because
3 these are short half-life materials. With copper, you can do storage
4 for decay fairly easy and fairly rapidly. And, in fact, our big huge
5 hunk of copper I said would be, with confidence I can tell you now, free
6 released, because we are required and do survey anything before it goes
7 anywhere from where it sits on our university, if it's in the radiation
8 use area. In this case, it was a machine and they surveyed the whole
9 entire thing with very sensitive equipment by hand; found a
10 year-and-a-half -- or two years ago, rather, one spot of 8,000 dpm,
11 which translates to 800 cpm on our machine -- on our instrument.
12 That will be decayed by the time we check it. This was a
13 tiny spot of about a centimeter and our plan will be simply to survey
14 again. If we still find any detectable radiation at all, we will cut
15 that apart and the part -- the one little spot will be shipped or
16 decayed further and the rest will be able to be released as not
17 radioactive.
18 Now, I just like to add some experience that we have,
19 because talking about activated products, rather by reactor or
20 accelerator or whatever, metals and so forth, we have a lot of
21 experience, because of this cyclotron. And this has been what we call a
22 kingdom of its own for many years, until about 10 years ago.
23 People wouldn't survey. They wouldn't put a number. They
24 wouldn't label, which we're supposed to do with isotope, date, and
25 radioactivity and dpms or micro curries. And the reason they wouldn't
and couldn't is because if you take electronic parts or tool or part of
a machine, anything, even another bolt, it's typically not a pure metal;
Some are, but most are not. So, your activation products can be, well,
what is this; what radioisotope shall I call it; what efficiency would
you like me to use. It's very difficult to do that.
But, I said, well, hey, I used to come out of research, so

1 we can handle this. And what we did is we took representations of all
2 the different kinds of things we encounter, whether it's an electronic
3 part or a -- actually a neon or a fluorescent light bulb or everything
4 you can think of that you run into in a building, and we gamma spec'd
5 them and surveyed them with beta analysis and gamma analysis and, also,
6 alphas, to determine what materials were in there; what radioisotopes.
7 And then we determined deficiencies for those with our NIST-certified
8 standards. And then we made guides for all of the operators and users
9 in that building -- they may be an electronics person, not a rad person
10 -- and a very easy to use cheat sheet, so they can pick up an
11 instrument, survey their part as they dismantle: this goes in the hot
12 drum, this one is not, with very good confidence. And this is something
13 that's been in effect for a number of years now, has tremendously
14 changed the mentality at that facility and has tremendously changed the
15 risk downwards, and has concurrently empowered and raised the knowledge
16 and the ability of the common person over there, who is not a radiation
17 health physicist person, the everyday worker, the electronics tech or
18 whoever.
19 That's the kind of process that I would like to see as part
20 of an eventual law, just the same as it is with our routine lab surveys.
21 This is something that is not rocket science. I train firefighters to
22 be able to do this. And I know that at any institution, whether you are
23 a reactor industry or even if you are not a licensee, it is possible to
24 have proper instruments easily used and well used to certify and show
25 that things are safe, before they hit the release spot, whether it's the
lead recycler, or the hazardous waste facility or the steel or copper
facility.

Thank you.

STINSON: Okay. And Kristin, if you could just give a
little thought -- not to respond now, but just give a little thought to
how you would see that working into a regulation of some format. That

1 would probably be helpful.

2 Mike and then Jud?

3 MATTIA: Just to talk about markets, focusing on copper, but
4 just to sort of give an overview of the values of materials, in terms of
5 recycling, material like iron and steel, which we've talked about, is
6 the most voluminously produced scrap; yet, when you look at a value per
7 pound, it is the least expensive scrap or let's say the least
8 profitable, because it sells at a fraction of a penny per pound. It's
9 usually dollars per ton. Large values are produced, because there's a
10 large volume demand, and it's one of the most expensive materials to
11 scrap, because it takes a tremendous amount of equipment and manpower
12 and expensive equipment to create the type of ferrous scrap that is in
13 demand by the steel industry.

14 When you go to the non-ferrous materials, of which copper is
15 a good example, where as iron and steel will sell for fractions of a
16 cent per pound, things such as copper can sell for dollars per pound.
17 So, it is pound per pound more valuable, because how much there is to be
18 scrapped; how much it costs to produce the new ore, so it's more
19 productive to create the scrap; and it's not -- you don't require as
20 much processing in the scrap facility to produce copper scrap.
21 Oftentimes, it's a case of just sorting and knowing what type of coppers
22 goes in what bins and how you will sell it to what maker.

23 When you talk about scrap, I think the Cadillac of scrap, in
24 terms of value per pound, would be nickel, probably one of the -- it's
25 the gold of scrap, that and maybe below it would be things like
stainless. But, these non-ferrous materials have a market value per
pound in the dollars and takes a smaller amount of effort, in terms of
investment, to produce. And so what you will have is the margins of
profitability for, let's say, iron and steel, will be very, very small.
Once you've produced and once you've shipped it, you're making a small
margin; whereas the margins start to expand when you're doing the

1 non-ferrous metals, because you're getting more for it per pound and
2 you're -- what you have to do to it is less expensive than how you have
3 to process the iron and steel.
4 So, if you're looking at the scrap industry, you could put
5 the 600,000 pounds of ferrous material on the table and say, you know,
6 that's here, and you're not going to see a whole lot of salivating over
7 it. But, if you start putting tons of copper and tons of nickel on the
8 table, tons of stainless, which is a very, very profitable metal -- it
9 has a marketability worldwide; it's easy to ship -- there is, in terms
10 of the scrap market, a tremendous interest. Now, granted, when you
11 start dealing with the contamination, it becomes a problem, because just
12 like the ferrous industry has been monitoring, so has the aluminum and
13 the copper and the nickel industry, realizing that there's problems
14 there, as well.
15 But, in terms of markets, in terms of profitability, the
16 non-ferrous metals, just on a market basis, are those that -- you get
17 attention with small quantities, where it takes huge quantities of
18 ferrous and non-problematic quantities to really get the attention.
19 That's why we've heard at the table, you know, the 600,000 tons of iron
20 and steel, when you've got a heap, which is 100 tons, and you do -- you
21 can have a facility that does a couple of those a day and there's a
22 tremendous amount of ferrous out there, it doesn't turn heads. But, if
23 you start talking tons of non-ferrous material, it starts to get
24 people's attention.
25 STINSON: Okay; thank you. Jud?
LILLY: This is Judson Lilly and I have a question for
Kristin and then, also, some DOE experience with the copper. The copper
from your accelerator was activated?
ERICKSON: Yes.
LILLY: And the question I have was: what was the -- in
more detail, how did you go about releasing that, as activated material?

1 ERICKSON: We did a funny thing at our accelerator, since
2 our accelerator fell through the regulatory cracks totally. We decided,
3 when I took over as RSO at the university, and it was a bad kingdom at
4 that time, we decided to do it completely under NRC. Because we have
5 many licensed sources and because there was not another regulation in
6 place from our State, who was doing nothing, we decided that's the
7 consistent easy way to do it. And so, we took that as our whole
8 program.
9 What we do, actually, is -- the process is we analyze with
10 gamma spec. For example, this copper would be one category or the
11 electronic part, to determine exactly what isotopes are there and
12 exactly what percentages are there. Then, we, also, looked at, with our
13 standards, what efficiencies we have for these relative isotopes. For
14 example, our activated steel is primarily going to be some very, very
15 short half-life isotopes that go away quickly and what remains will be
16 cobalt 60 and sodium 22. And we know approximately what percentages,
17 about a 10 to 1 ratio cobalt to sodium. And then, we can either gamma
18 spec it or use a Geiger counter contact, depending on the depth and the
19 volume and the geometry, to determine exactly how much radioactivity is
20 in that.
21 In this case, with copper, it was -- it's really quite thin,
22 an inch or two, and it is massive, big slabs. Actually, they look like
23 slabs -- pieces of a circle. And we just survey the entire thing by
24 hand, found the one little tiny hot spot that's less than a centimeter
25 in dimension, and labeled the whole thing, brought it out there for
storage. They thought they were going to take it back and use it for
another machine someday, which isn't going to happen. So, now, it's
going to be waste. And the process is simply going to be our team goes
out there with our Geiger counters. We use beta pancake, low energy
gamma, high energy gamma, one-by-one gamma. We have all three. Alpha
detection, we use those, as well. If it is any chance of teridium,

we're doing wipes for that, or taking -- grinding samples, in some cases, and then we analyze.

Our limits that we use for release are always less than the twice background rule for the proper calibrated instrument, and that's under -- what we call under the NRC regulations. And the way we do it -- the proper calibrated instrument means I can meet the detection limit of 200 dpms per hundred square centimeters. In our case, we go lower, 200 dpms period. Whether it's a micron or whether it's larger, we calculate up for areas. In other cases, depending on what we're releasing and how we're doing it, we look at the MPC. We use that. So, if the maximum progressible concentration for unrestricted release for air and water -- and that's what I do with ash, I'm licensed to use the water limit for ash, which is another foolish thing and another reason why we'd like to see solid material numbers. Ash and water aren't the same density, but we can use that and we do, because that's the only licensed way we can get to that.

So, that is our process and it works very well. It just took some time, some preliminary effort on our rads staff's part to identify the groups of materials; analyze those very, very carefully and repeatedly, to get some good data; and then come up with some efficiencies and then write the guide, train the people, post the guides all over the cyclotron. That's what we did.

STINSON: Given the experience that Kristin is relating and the dollar figures of the value -- the potential value of copper in the marketplace, I'm wondering if there are any particular alternatives for control that make more sense for copper, than, perhaps, other materials. And I want to make sure that people get those ideas out on the table, you know, express your views on alternatives. And we need to understand if there are more potential health and environmental and cost impacts that you'd like to see the NRC consider, if they move forward with the rulemaking, get those on the table, as well.

1 Is that it for you, Jud?

2 LILLY: NO, I wanted to -- this is Judson Lilly, again, with
3 the Department of Energy. I wanted to follow up. We've had similar
4 experience to Kristin. We have accelerator facilities, where the copper
5 has been activated. There's a facility in California, where we released
6 activated copper at very low levels. We coordinated that with the State
7 of California and, also, under the DOE Order 5400.5, which I've
8 discussed, which does have a volumetric procedure. There are additional
9 accelerator facilities, also, in California, that will be doing future
10 releases. And then, finally, there's some copper at Frenold, that's on
11 the table to be released, also, following the same procedure.

12 So, I think Mike was correct that this is a material, where
13 the value is such that it warrants the extra attention, because of the
14 price it commands. But, there is some experience on our side of the
15 house, where we've been able to do this.

16 STINSON: Great; thank you. Paul?

17 GENOA: Paul Genoa, NEI. And, of course, with my experience
18 with nuclear electric utilities, copper is a key component. We don't
19 routinely see a lot of copper coming out during operations; but when
20 equipment is changed out, there will be lots of cooper available.

21 But before I get into listing the types of copper and
22 sources, I wanted to talk about another control element, to kind of
23 follow on Kristin's thought. And this covers all materials and is
24 required as part of the evaluation of a survey on all materials. And
25 that's because at a power plant, we deal with a whole spectrum of
isotopes from -- potential isotopes from the reactor and from the fuel.
So, we don't have the luxury of saying, well, there's only carbon 14
here or there's only cobalt 60 or there's only cesium. In fact, there
can be a wide spectrum, and the only way for us to be able to know is
from process knowledge and experience and through sampling and analysis.
Not only do we have to do the surveys, the gamma spectroscopy that you

1 discussed; but we, also, have to think about those hard to detect
2 isotopes, often in very trace quantities.
3 And it is a challenge. The detection limits for many of
4 these things are very, very -- the limits are high; the detection limits
5 and the concentration that's potentially there are very, very low. So,
6 in many times, even when we send samples off for very expensive and
7 detailed chemical separations, concentrations, and analysis at off-site
8 labs, the answer comes back non-detectable. But, nonetheless, we assume
9 that there is material up to that level, if necessary, and to develop
10 what we call scaling factors or ratios between those hard to detect
11 isotopes and the isotopes that we can see routinely; sort of like
12 fingerprints for a certain part of our facility. And so when you can
13 measure cobalt or cesium, which are very easy to measure with routine
14 instruments, we, then, apportion an assumption that there are these
15 other isotopes along with them, because they could be, and then our
16 detection capability has to factor those things in, as well.
17 And that's, also, how we would characterize material for
18 waste shipments. This really is designed for waste shipments; but it
19 is, also, practice. Facilities in Tennessee that receive material from
20 us, the Greenest Clean Program, material we think is clean, but we want
21 to send it to a facility that's dedicated at survey and release, they
22 will actually take that fingerprint analysis, build it into their
23 computer algorithm, to determine their detection sensitivity and
24 counting criteria. So, that's sort of an overview, and maybe that's a
25 discussion of another control approach or monitoring approach.
But, as to the copper, itself -- and I really have just
started thinking about this, so I don't have, you know, quantitative
numbers for you. But the truth is, the NRC has done a lot of work on
referenced PWRs and BWRs and virtually knows every piece in those power
plants.
STINSON: Say what PWRs and --

1 GENOA: Pressurized water reactors and boiling water
2 reactors. So, there are several new regs that I can refer you to that
3 go piece by piece of what's in there, so they should know that material.
4 But, every power plant has a turbine generator system and
5 the generator is a giant electric motor, completely wrapped in copper.
6 Those are always going to be clean, unless some very bizarre thing has
7 happened. There is, obviously, electrical cabling and very large
8 electrical cabling, all over the power plant. All of that material
9 insulated with very high integrity installation to last in a safety
10 related capacity, over the life of the facility. And the experiences
11 today, internationally and nationally, is that that material, even if
12 the cabling installation is contaminated, when it's stripped off, the
13 metal inside is clean. There are just small motors and pumps everywhere
14 that have small electric motors, that have windings, those have the
15 potential to have some surface contamination, depending on where they
16 are; many won't.
17 There are electronics of all types that have copper
18 components in them, that could be salvaged and recycled. It's unlikely
19 that they would be contaminated, but it's possible. There are large
20 transformers, huge electrically transformers that are loaded with
21 copper; very unlikely that they're contaminated at all. But, again, I
22 don't know where this rule is going, so we have to assume that
23 everything has to be removed.
24 So, I would guess that -- and some of the motors, like our
25 reactor coolant pumps that actually move the cooling liquid through the
reactor, there's usually two to four of those and they're about 12,000
horsepower each, so they're very big engines -- very big motors, rather,
and loaded with copper. And those have -- the reactor coolant pumps,
themselves, have the potential to have some surface contamination. But,
we've got real creative people out there that clean these things all the
time and refurbish them, so I'm quite sure that they can be cleaned to

1 some level, if it's established, and allowed back into the marketplace.

2 So, I think there is a valuable resource there. The bulk of

3 it probably won't be available until decommissioning of these

4 facilities, although there's probably a small stream routinely released.

5 STINSON: Okay, thank you. Dan Szwed, you've been waiting.

6 SZWED: Dan Szwed, speaking on behalf of the Metals Industry

7 Recycling Coalition. To some of Mike's comments and Paul's comments,

8 they're correct in their assessment that copper and stainless and nickel

9 have cost values of dollars per pound. However, the industry is not

10 interested in accepting any of that, unless it's clean. The risks to

11 our products, many of those which go into consumer applications, is just

12 too great and the business isn't going to accept it, regardless of what

13 the price is. So the burden is going to have to be if stainless or

14 nickel or copper is going to be released, it's going to have to be below

15 a background number, it's going to have to be below a dose number, and

16 it's going to have to be below numbers, where there are rigorous,

17 accurate, and very low detection methods used to establish those levels.

18 Just passing an instrument across and saying it looks like it's clean

19 won't cut it in the marketplace for the ultimate customer, which is

20 going to be the copper smelter or the nickel smelter or the steel

21 smelter. There's just -- we pay too much money for that material to

22 demand anything less than clean material.

23 STINSON: Because of consumer -- potential consumer reuse of

24 this material, if it was to be released, are there any particular health

25 and environmental impacts that you would recommend NRC pursuing,

studying in an EIS format, as they go that route?

SZWED: Well, let's take the copper. I'm not a copper

expert, but I have copper plumbing in my house and I think with the move

away from lead-based solders -- I mean, there was an environmental

impact, whether they were real or imagined, created elimination of

lead-based solder in copper drinking water pipes. It has opened up new

1 markets for alternatives to copper for drinking water pipes. So,
2 anything in the way of an environmental impact, whether it's the
3 chemical makeup or any radioactivity contamination, has to be considered
4 and it has to go all the way down to the consumer.
5 That's the exact perception issue we were talking about
6 yesterday. You may not think you can quantify it, but you have to. You
7 have to use some of the assumptions from the experts in this audience.
8 And I think Peter Hernandez brought up an excellent one yesterday, where
9 he said, let's just assume one percent of the steel market goes away
10 because of this. There's a man that's an expert in the steel business.
11 Why isn't his opinion valued when he says one percent? Maybe that
12 wasn't the most rigorous research done, but it's coming from an industry
13 expert, so it ought to be acknowledged and that ought to be factored
14 into it. And that's how you value the perception issues.
15 STINSON: Yeah. And I don't think there's any indication
16 that, you know, any statements here are not being valued. I think the
17 effort is to try -- I mean, people are repeating certain issues, not, I
18 think, because they're being ignored, but to reiterate them and make
19 sure that they're in the record and to put different twists on them and
20 that's helpful.
21 SZWED: I'm just reiterating, as well.
22 STINSON: Yes, sir? Did you have a question about copper
23 specifically?
24 BARNETTE: Jack Barnette, EPA, Chicago. Every year, several
25 thousand -- tens of thousands of people are killed in automobile
accidents in this country; about 400,000 people die from tobacco-related
illnesses in America; and about two people die from shark attack each
year. But, if you go to a crowded beach and yell, "shark," everybody
will run out of the water and about half of them will get into their
cars and light up a cigarette.
People understand cigarettes and they understand cars. They

1 don't understand sharks and so they have a great fear of the unknown. I
2 think the same is true of this discussion that we're having today.
3 People have a great fear of what they can't control and what they don't
4 know. And I think the people in the industry, who deal with the
5 reprocessing of these metals, have stated it very clearly: people have
6 an enormous fear of what they don't understand.
7 STINSON: Can you get to your point about copper?
8 BARNETTE: I'm going to get to my point. Some of the folks,
9 who are the professionals in the health physics area, from a very
10 scientific point of view, can point out that there probably aren't
11 greater risks possibly from these things. But, I think the general
12 public and the elected officials aren't going to understand that. If we
13 want to reuse these metals, which is a good resource and it's a good way
14 to save energy, it's a good environmental benefit, let's recycle them
15 within the industry, itself, rather than have a free release. Free
16 release jeopardizes the integrity of everybody at this table and it
17 raises concerns with the public that can't be addressed either by NRC,
18 EPA, or the industry, in general. So, I would say that if we want to do
19 this and we see some environmental and economic benefits to the country,
20 let's consider doing this within the industry, itself, as opposed to
21 some other alternative.
22 STINSON: Okay; good. I wanted to -- I thought maybe you
23 had a specific question. I wanted to allow that into our discussion.
24 If members of the audience want to make general comments and offer their
25 input, we're welcoming that and looking forward to that and we'll do
that at the close of each metal discussion or each material that we
discuss; so, just for future reference.
Let's see, I think we have Paul and then Susan -- I mean,
Mike and then Susan. Paul?
MATTIA: Again, I'm going to ask Kristin to give me a little
bit of an education. Your copper, for example, from your cyclotron,

1 when that is offered for sale, how will it be presented? I'm assuming
2 you are offering it for sale for recycling purposes. How is it -- how
3 will it be presented? The individuals, who are asking to purchase it or
4 bidding on it, what will they be told and what type of documentation is
5 being presented for that material?
6 ERICKSON: That's a good question and, boy, we run into that
7 often. We release things at MSU to salvage yard all the time. Our
8 refrigerator goes there, an instrument. So, those things coming out of
9 labs are an almost everyday thing. And we finally developed a process,
10 working together with salvage yard, our campus, and ourselves, and that
11 is when somebody wants to release anything, whether it's a refrigerator
12 or this stuff from us, we have to do a complete and thorough survey for
13 very single thing that could have ever been on it, according to the use
14 it was.
15 And then, we have -- we've developed a form, called the
16 "Equipment Release Form," and it was a simple piece of paper that we
17 worked together with our physical plant people, who do the ventilation
18 and all sorts of repairs, they were worried. And it simply says, this
19 is what this material is; here's where it came from; and this is what
20 was used; and here's what we looked for; we did not find anything at all
21 and here's who you can talk to. We sign our name and date, so it traces
22 right back to us even.
23 In the refrigerator case, it may be the lab releasing it.
24 But, they don't trust them as much, so they actually have us check it,
25 too, and we put our name on it. So, our office, which is Office of
Radiation, Chemical, and Biological Safety, long name, ORCBS assigns
that and says we certify it, too. That's how it's done. So, we release
it as not radioactive, together with that form.
MATTIA: Just as a follow up, when you release it, are you
releasing it according to Reg Guide 1.86?
ERICKSON: No, we don't use that at all.

1 MATTIA: Is it safe to say that there is some level of
2 contamination possible in this material?
3 ERICKSON: No, there would be none. And this is part of our
4 ALARA program. Ours, in MSU, is so aggressive. I've talked about the
5 cement floor. That little chunk of carbon 14, I think anybody in this
6 room might know how to find it. When we had an incident and we were
7 surveying carbon 14, difficult to detect out for that incident at our
8 cyclotron, we were finding things that the State did not find and the
9 NRC did not fine. We're so picky and we go down to nothing. Things
10 that the reg say we can release, we do not. Contamination on the bench
11 in the lab that is permitted under the law, we don't permit. We cite it
12 as a violation and make them clean it up, because that's our program.
13 And when we release something, I, honestly -- we do it to such a degree,
14 that I could defy anyone, anywhere, to come and try to find some
15 radiation with any method they want. So --
16 STINSON: So, it sounds like your facility is diligent.
17 ERICKSON: We build in the most conservative --
18 STINSON: Right.
19 ERICKSON: -- lowest -- we find the way to do the lower load
20 number technology. We make ways and we document that with certified
21 standards.
22 STINSON: Susan and then we're going to ask if there are any
23 comments out in the audience or questions that folks would like to
24 raise. And Giorgio has a question, as well, I think. Susan, go ahead.
25 LANDAHL: Susan Landahl, Comm Ed. I just want to build on
what Paul had mentioned, and one my concern, listening to the
conversation, is that if the -- I'm always going to the practical
implementation of any potential rulemaking. And as far as releasing
material from the power plant, it would be very difficult for us to
implement different standards for different materials, just because what
we're releasing is things like motors that maybe has some copper, some

aluminum, some plastic.

And while I understand the difference when you get to the end point, because if we're talking about reintroducing it into, you know, the population, it takes different forms when we do that. We need to have some way to actually survey, you know, these complex items when they come out. As Paul said, it would be very unusual for us to have a large volume of a particular metal, you know, like copper, maybe. When we replace a generator, then there could be something specific. But, I wouldn't want to ask health physics technician to be making a judgment on what the instrument should read, based on him having to know what material is in the item. Cable was another great example. You know, we can't -- we can't strip the cable before we release it and count the insulation to one level and the copper, you know, within it to another. So, just from a practical standpoint, I'd ask you to take that into account.

STINSON: That's an important point registered under the potential for alternative control measures. Giorgio?

GNUGNOLI: This is Giorgio Gnugnoli from NRC. I just had a clarification question for Kristin. Earlier, you said something about using twice background for copper and then you said you're so clean, that's below, you know, the normal affectability for other entities. I just wanted to clarify those two things. Maybe, I got the wrong thing written down, that's all.

ERICKSON: Okay. We use a variety of instruments. I want to first comment that we don't use one millirem or anything. We have microrem ion chambers, so we know our background is 10 or 20 microrem or 100 or 200, depending on where we are. And we are at that level. We use an ion chamber. We use a beta pancake detector, which sees between 30 and 100 counts per minute background of radiation, which translates 10^{-5} micro curies per gram for carbon 14. So, we see that level. For low energy gamma, we get a background of one to two hundred counts per

1 minute. For a one-by-one gamma, we get eight hundred to fifteen
2 hundred. To use a high energy gamma background detector, which I
3 believe that's what a lot of the waste scrap metal places are using, you
4 can see three and five-thousand counts a minute background.
5 That's why this twice background thing is critical and I
6 don't think it should be used. You know, a generic twice background
7 number, our State has that. Twice background could be a wide range.
8 GNUGNOLI: So, you don't use it, though, is what you're
9 saying?
10 ERICKSON: We use it on certain parts of it, if we're
11 screening. Okay, if I'm screening lab benches twice background; but,
12 then, when I release something, I use every instrument possible to get
13 down to the MPC numbers. Thank you.
14 STINSON: Okay. Thank you for that clarification. Frank,
15 you have a question, also? No. Rob, then, we're going to move on in
16 our discussion.
17 LEIB: Rob Leib, First Energy. Mike's question about can
18 you really say that there's no contamination, the way I view it is that
19 there's really no way that you can guarantee that there's not a few
20 atoms of this and a few atoms of that. All you can say is within the
21 statistical ability of your instrumentation, that we cannot detect any
22 difference from the background, with the parameters that you set. I
23 just want -- I don't want you to be disillusioned and hear that, you
24 know, yeah, there could be a few atoms.
25 STINSON: Is that current, Mike? Very quick.
MATTIA: Just two issues. One, I agree that the concept of
zero is a very difficult issue. And that goes back to the comments
we've made in the past on numerous occasion, that if -- as we talked
about perception, people understand zero and people understand anything
above zero of radioactivity could be a problem. That's why there is a
need for -- in the industries and the scientists to come to some kind of

1 an understanding that zero isn't the ultimate; maybe that something
2 above zero is livable with, even if we're talking -- because no one can
3 say that it's at zero.
4 The other issue in dealing with copper, for example, and
5 this doesn't go just to the scrap recyclers, but it goes to the people
6 who own the material, the steel mills or the industry, if you've got
7 some copper and in order to sell the copper for two dollars a pound,
8 it's going to cost five dollars a pound to clean it; now, you're going
9 to be in a quandary, because the industry may not want to make money
10 selling this material to scrap, but they certainly don't want to take a
11 bah on it.
12 And so, the concept of at what level will it be acceptable
13 to industry and at what levels are considered clean is a tremendously
14 important issue, as is decontamination, because, you know, maybe you
15 don't want to strip the insulation from the copper cable. Maybe there
16 are industries that will do that and buy it for x amount or you strip it
17 and then you sell it for a higher amount.
18 But, again, these are issues that need to be addressed and
19 some conclusions reached, before you start to create rulemaking, because
20 then you've got the industries agreeing on how this material will flow
21 within parameters, and then you can create the rulemaking. Just dumping
22 it out there, I think, it's going to -- on large levels, it's just going
23 to cause a great deal of chaos.
24 STINSON: Okay. Paul, did you need to follow up on that?
25 GENOA: Paul Genoa, NEI. As a point of clarification, and
following along Mike's thought train, the truth is nuclear power plants
are in the business of making electricity. That's what we do and that's
what we're focused on. The materials management issue is a collateral
activity that's required. It's the cost of doing business.
We learned a long time ago that in many cases, it's more
profitable, it's more effective, to allow market-based solutions to

1 handle some of our problems. And so in the Oak Ridge area, for
2 instance, there is -- developed a whole series of industries that are
3 vendor oriented industries, to serve some of our unique needs. And
4 those unique needs are things like the processing of material, as you
5 mentioned.
6 We would not take an electric generator or a reactor coolant
7 pump and strip it about at our facility. We would transfer that piece
8 of equipment, probably under license conditions to a license vendor, who
9 is in the business of doing that. And that person, who does nothing
10 other than take apart those kinds of pieces of equipment and subject
11 them to radiation survey and release, or constant decontamination,
12 concentrating the activity in one place and disposing of it and
13 isolating it safely, while releasing the clean material for reuse. So,
14 we fully envision that if a standard is -- if a reasonable practice safe
15 standard is developed, that the existing industries out there will
16 continue to do what they're doing and new industries will evolve to
17 address those solutions for us.
18 But, just so you understand, we don't go to a great deal of
19 trouble. We don't take a computer terminal apart and strip out the
20 copper parts and do something with them. We release a computer terminal
21 or we throw it away. It's just physically impractical.
22 STINSON: Or you send it to a licensed -- another licensed
23 vendor.
24 LEIB: Right, or -- yes. Someone says, hah, I can set up a
25 business by taking computers from all over and subjecting them to this
type of recycling. And that's what I'm saying, it would be very
difficult for you to anticipate who could do what under what conditions.
But, if you set a standard, then the market will respond, if there's a
market.
STINSON: Okay. Two cards have gone up. I want to shift
our conversation to concrete, or else we're never going to get there.

1 So, if you guys can live with that or fold in your comments elsewhere,
2 Peter, that would be great. Are people okay if we proceed into concrete
3 and get that discussion going, before we take a break? Anybody dying?
4 [No response.]
5 STINSON: Okay. We're going to look to you quite a bit,
6 Charles, on this particular issue. Again, you know the questions before
7 us and if you can just speak a little bit to the experience that you may
8 have or know of, regarding the nature of the recycling of concrete, how
9 it's used, etc., and how introduction of additional or particular types
10 of radioactive material would impact your industry, that would be
11 helpful.
12 WILK: Thank you. I'd like to start out first of all to say
13 I'm Charles Wilk with the Portland Cement Association. The Portland
14 Cement Association is an industry association of the cement
15 manufacturers in the U.S. About 94 percent of the cement that's
16 manufactured in the U.S. comes from our member companies.
17 There is a distinction between cement and concrete, and it's
18 important that people keep that in mind. We often use, including at
19 this table sometimes, the term cement --
20 STINSON: Just now in my comments.
21 WILK: -- and concrete. Cement is a manufactured material.
22 It makes up 12 percent -- generally, 12 percent of concrete. Concrete
23 is 12 percent Portland Cement, usually. There's aggregate sand and
24 water that's part of that, to make up the very familiar material that we
25 see. Concrete is used in -- obviously, in paving, in buildings and
structures. You'll see a lot of it in high rises. It's finding an
increasing use in residential housing. Most people from -- in many part
of the country have concrete foundations and basements. We're, also,
seeing an increasing use of concrete in above-grade residential walls in
construction. And I think that's important to the discussion here, as
far as risk, because you may wish to base whatever your calculations, as

1 far as safety, on people sleeping their entire -- sleeping, living in a
2 surrounded by concrete. And, of course, while they're at the workplace,
3 they're surrounded by concrete. So, their exposure -- their everyday
4 exposure to concrete is probably greater than most of the materials
5 we've talked about so far.
6 You, also, have to realize that concrete is used for
7 drinking water reservoirs. In tanks, it's used for conveying drinking
8 water. It's, also, used perhaps -- and we'll get back to it here when
9 we talk about uses of pre-owned concrete, that concrete -- there are
10 reservoirs that are lined with riprap, which could be recycled concrete.
11 As to the different uses for concrete that's been recovered
12 from other facilities, first of all, it's important to note that
13 concrete is not used in the manufacture or cement. Cement is
14 manufactured from quarried and mined materials. It's not -- the use --
15 you don't grind up concrete and put it back into a cement kiln to
16 produce new cement. However, concrete -- used concrete might find its
17 way back into new concrete as an aggregate. There, also, a great use of
18 used concrete as a paving base. People from Chicago here might know
19 that the Eden Expressway was previously used -- was previously
20 constructed of concrete. The old concrete layer was ground up and used
21 as a base in-place for the new concrete that was placed over it. Used
22 concrete can be used as fill. Some of that fill goes into residential
23 housing and some of it into industrial uses. I mentioned before that
24 used concrete might go as riprap that would line reservoirs.
25 Another point I wanted to make is concerning costs, and
earlier statements were made, as to the relative values of different
metals or alloys in the marketplace. I, personally, do not have a
dollar value for what used concrete might be valued at. I can tell you
that Virgin Aggregate, which is probably the closest material to perhaps
recycled concrete, although I think Virgin materials are probably worth
more Virgin Aggregate is worth around eight dollars a ton. So, it is

very -- the value of used concrete would be significantly less than that and -- which brings us to something concerning economics.

I don't really see -- well, let's go back. In our industry, when people make -- in the concrete industry, which would, I guess, in a way include the cement manufacturing industry, you have the cement manufacturer, you have the people who create concrete, which would be the Readymix ~~or~~ Companies the Readymix folks, they would ~~be~~, then, in turn, stockpiling aggregate, and cement and water. And then, of course, you have the cement ~~basins~~ masons that would use this material everyday.

The -- we discussed the detection, as I understand, and I think that the scrap industry is probably further along in this than the Ready Mix industry, in that in the scrap industry, people use detectors for each load of material that comes in. I'm not aware of any Readymix guys -- or Readymix companies, that screen demolition concrete with radiation detectors. There might be some out there. It's quite a diverse -- it's quite a diverse bunch of people, as far education and business practices. So, there may be some out there that do screen this material, but I would suspect there are a significant number that do not.

I think that's important, in terms of economics, to understand, because if the concrete industry and the Readymix industry learns that there's a possibility of them receiving material with some level of radiation, they would probably be very, very interested in now buying equipment and training people. I understand that it's not rocket science. I think it's probably nuclear ~~physicists~~ physics ~~science~~, as to the detection of that. And there would be quite a significant outlay in capital for the equipment detection and in training of the people who would be conducting the surveys of that material.

We had a comment earlier today concerning the cost to power generation, as to increased cost of disposal. It would seem that if the NRC allows the unrestricted use of material, even at some level of

1 radioactive contamination, that what the NRC is doing is actually moving
2 the cost of disposal from the power generating industry to other
3 industries. And I don't know whether the emotional part of this issue
4 would then cause the industries that were receiving these materials
5 higher costs, higher dollar values than would have originally be
6 incurred by the power generations or the people with this material in
7 their disposal costs. Perhaps if the rates were raised commensurate to
8 include the disposal costs, people may use less electricity, and there's
9 obvious environmental and economic savings in the use of less
10 electricity.
11 That's pretty much the end of my formal presentation. Thank
12 you.
13 STINSON: That's helpful. And it would be helpful to hear
14 from the industry a bit, and maybe that's why Paul's card is up. What
15 kind of material, what amount of material would be coming from --
16 potentially from different facilities, you know, and where might you see
17 it sort of going from there and where does it go, you know, if it is, in
18 fact, through decommissioning instead of release, at this point?
19 Peter, did you want to address this issue or -- okay, go
20 ahead.
21 HERNANDEZ: Thanks. Peter Hernandez. I wanted to ask:
22 what is the current recycling rate for concrete and do you see that as
23 increasing, staying the same, or decreasing over a period of time?
24 That's the first question. And then the second: does it include
25 highways and bridges?
WILK: Okay. The current recycling rate of concrete in the
manufacture of Portland Cement is zero. As I stated before, I'm with
the Portland Cement Association and that's what we do. We, obviously,
have associations with other industries, including the people that
produce concrete, and a very close association, because we -- obviously,
our industries are closely tied.

1 The -- I have not researched that question to give you an
2 answer. One of the factors of recycling concrete, because of its value
3 is so low, you don't transport that material very great distances. And
4 as an example of the Eden Expressway, the material is ground and used in
5 place. I would imagine, again, the value is very low and so the risks
6 posed to a Readymix company, as far as public opinion fallout from
7 possibly radioactive foundations and so forth, is quite high, compared
8 to the benefits to that industry.
9 HERNANDEZ: Thanks. The reason I asked is I was in Denver
10 recently and I saw them recycling a highway and some bridges. What
11 happens to the steel that's in that material, if you're grinding up and
12 reusing the concrete --
13 WILK: You're talking about the --
14 HERNANDEZ: -- the cement.
15 STINSON: -- the reenforcing steel that would be embedded in
16 the concrete?
17 WILK: There are plans that can separate the rebar out of
18 the concrete. And I'm not certain of this, I would assume that that
19 steel just goes back as scrap steel. I don't really know the metallurgy
20 of rebar to know whether that's just common steel. Perhaps people here
21 from the scrap industry know. So, I don't really know the value and how
22 much effort is placed into separating and segregating that material.
23 STINSON: It seems like a real relevant piece of
24 information, at some point, to find out what the answer to your first
25 question, what really is the rate of recycle of concrete and how does it
get used? How big is the industry, etc.? And we appreciate you trying
to speak as much as you can at these issues, recognizing it's not really
directly your business.
Steve? And we'll just let you know that the comments for
concrete we're going to take at the end, so I don't want -- you can
stand if you want to, but I don't want you to have to stand the whole

1 time. Steve?

2 COLLINS: Steve Collins from Illinois. Questions again for

3 the Portland Cement representative to educate me. The cement comes from

4 quarrying what? And then after you answer that, at what part in the

5 process of making concrete or other use of Portland Cement does fly ash

6 get added a lot of times?

7 WILK: Okay. Cement is made by quarrying shales, clays,

8 limestones. They are fired into ~~large~~ the largest industrial furnaces that exist on

9 the earth, to 1400 degrees to 1800 degrees centigrade. The use of fly

10 ash has increased in concrete. Fly ash is used in two ways. There are

11 such things called -- ~~it's called~~ blended cements, which are blends of

12 cement and fly ash, which those bends are made at the cement

13 manufacturing facilities. ~~There are, also,~~ -- There is, also, fly ash

14 that is introduced into concrete at the Readymix plant. The federal

15 government mandates some level of fly ash, to be used in all

16 federally-funded projects.

17 COLLINS: Okay, that's very helpful. So, everything that

18 goes into your process, unless steel or some of the others, is a

19 naturally occurring material from the earth, so it has naturally

20 occuring radioactive materials in it, including the fly ash that you add

21 to it. So, it would appear that maybe your industry might be more

22 receptive to accepting some slight increase of some radio nuclides and

23 still using that? Or is that not an accurate statement?

24 WILK: So, you're asking if our industry would be willing to

25 accept additional radiation in their product?

COLLINS: In other words, is recycled --

STINSON: Given the level of background, it might already exist.

COLLINS: Is recycle more of a potential on yours than some of the other metals industries want to --

WILK: Well, I really don't know the answer to that and I

1 think the way to discover that answer is for the NRC to conduct a
2 perception study, as to people's willingness to accept greater radio activity
3 in their basement foundation and their above-grade residential walls and
4 in their office buildings.

5 STINSON: Okay. Let's keep this discussion moving. See if
6 there are thoughts that you all have on methods for control. If anybody
7 knows about the use of detection equipment regarding -- for concrete or
8 for cement, that would be helpful, trying to bring some of those issues
9 out.

10 I was going to go to Jas and then Mike.

11 DEVGUN: Jas Devgun. I think my first question of the day
12 for Charles. I think you spoke very well, with respect to the overview
13 of the concrete industry as such. But, do you see any resource value,
14 not only in terms of the concrete, whether we recycle or how cheap it
15 is, but in terms of what else we do with it? Like, if we dispose of it
16 in landfills -- industrial landfills, we are taking up a lot of space
17 there, too. And that's a resource in itself -- the landfill space is a
18 resource. So, there must be some kind of balance in the value to the
19 society, the net benefit.

20 And then maybe, areas, for example, where you, obviously,
21 don't want to put it in people's basements and they probably would not
22 -- from perception alone point of view, would not like to have a
23 basement, which shows any licensed activity there at all. But, in terms
24 of the highways, for example, which use very large quantities, may not
25 be as high. Do you see any value with respect to those two issues: the
resource and conserving the disposal space and, also, in terms of using
it on highways?

WILK: I understand that it costs money to run a landfill.
I'm not well enough versed in this to know whether or not the
radioactive contaminated concrete is -- goes to a sanitary landfill or a
hazardous waste landfill or does it go into a demolition degree

1 landfill. There's probably differences in the costs between all those
2 different disposal scenarios.
3 From a scientific sense, I can see that conservation
4 resources is important. But, the economic reality will be that people
5 will not want to purchase concrete that has a higher radioactivity or a
6 potential for a higher radioactivity, than was done before people
7 started recycling this into commerce. And those costs would -- I would
8 suspect, outweigh the additional disposal costs, based by the people who
9 generated and profited from the use of that material.
10 STINSON: Okay. Mike and then Kristin? Steve Collins, is
11 that current? That's current.
12 MATTIA: I guess the question for anyone: where -- and
13 let's say, facilities that would have radiation, that would be recycling
14 material, where do you see concrete being used and the potential for
15 that concrete to be demolished or potentially recycled and what's the
16 potential for the contamination and for decontamination?
17 STINSON: Kristin and then Paul.
18 ERICKSON: I'll answer that one first, because I was going
19 to comment that anyway. In the academic and medical institutions, it's
20 not a common problem; but as years wear on, we encounter it more and
21 more. The comment about the building, we totally -- we gutted it right
22 down to the bricks and then rebuild, cement floors, walls, ventillation.
23 So, we encountered some there. As years go on, though, and we do begin
24 to tear down more buildings -- our science buildings, we may, again,
25 encounter it.
Now, the potential for contamination is essentially none,
very, very little. In fact, that whole huge building, Anthony Hall,
four floors, big, big, building, we found one spot, less than one square
centimeter, of 200 counts per minutes, which is barely above background,
and that's all we found in the whole building. So, I don't think it's a
big problem for us. I think the surveying of it is easy, because it's

1 likely to be surface contamination, if anything at all.

2 And release of it, well that's pretty easy, too. You find a

3 spot. You either decontaminate it and treat that as radioactive waste,

4 whatever the materials are, or you just chunk it out and treat that as

5 rad waste, which is what we did with that spot.

6 I have two other comments related to and to respond on the

7 fly ash and the cement, in general. Thinking of the mining of shale and

8 what it does, I've seen them smash mountains in Colorado and I'm not a

9 really big activist in Greener, but I do care about the earth a lot.

10 That's how I got into this business. I think we all did get into for

11 that reason; otherwise, why would we be such masochists?

12 At any rate, that's one thing to think about. If you mine

13 all that shale and knock down those hills and those mountains or create

14 those gullies and take chunks of the earth out to build roads or bridges

15 or homes, this can be minimized by reusing concrete. Overall, I think

16 concrete is an easier and more likely candidate for reuse, because of

17 the ease. It's porous. It crumbles apart. If I had a chunk, I could

18 actually just analyze it by dissolving it and doing some very

19 sophisticated wet lab things, easy to do. So, I think that's one thing

20 to think about.

21 The other thing to think about and keep in mind for Charles,

22 your fly ash has higher radiation than most of anything we could ever

23 release. I cannot use fly ash or wood ash or coal ash or anything else

24 in my analysis of our ash. It cannot be used for control ash, because

25 there is so much radiation in it, that it's much higher than anything I

measure.

STINSON: That was part of Steve's point, I think, in raising it.

ERICKSON: Yeah. The radiation in there is enough, that you would have trouble measuring low, low levels already. Just a comment.

MATTIA: I think it's alpha and beta.

1 STINSON: Thank you.

2 ERICKSON: Alpha and betas, yes; that's right.

3 STINSON: Sure, go ahead.

4 WILK: As I mentioned, the content of --

5 STINSON: Mention your name, I'm sorry.

6 WILK: My name is Charles Wilk with the Portland Cement
7 Association. The use of fly ash, as I mentioned before, is mandated by
8 the federal government, and I think -- I don't really know the regulatory
9 history as to that, I would suspect that the reason why they were
10 interested in incorporating fly ash into concrete is to find a way to
11 manage the waste stream from cold fire air -- cold fired electric
12 facilities. So, fly ash -- I think we would probably be more
13 interested, as a cement manufacturing industry, to produce more cement,
14 than to substitute it with fly ash. It's not, as part of, our choice that
15 we're introducing possibly radioactive material.

16 And the prospect of adding additional radioactivity to a
17 product associated with cement industry, as I mentioned before, I don't
18 really know the answer to that, but I would suspect that some study
19 could be done to ask the public would they be interested in living and
20 surrounded with more highly radioactive concrete.

21 STINSON: I have to apologize. I mentioned that I would be
22 taking the public comment on copper and I thought I would ask for that
23 at that moment and I think I didn't really ask for it.

24 There may be comments that you want to make on copper. We
25 will certainly do that for concrete also, so if you do have those
comments you are not passed by and we will take both of those at the
same time when we complete the concrete and cement discussion, which we
may accomplish before the break but probably not given the number of
cards that are up, so be ready to make comments on both at the
conclusion of this discussion, and we will go Paul and then Steve and
possibly take a break.

1 GENOA: Paul Genoa with NEI. I wanted to focus on a couple
2 of comments made, to reinforce them, and that is that concrete is very
3 heavy and its recycle value is very small, so it is unlikely that
4 facilities are going to transport the concrete a very long distance
5 because the transportation costs will outweigh the benefit.
6 The second point is that nuclear facilities generally,
7 because of th stout nature of their construction, the benefits of the
8 shielding and the containment offered by concrete, particularly in power
9 reactors, we have huge volumes of concrete.
10 Our concrete mats at the bottom are 10 feet thick. The side
11 walls are three to five feet thick of our containments. Tens of
12 millions of pounds of concrete in a facility. Most of the material
13 stays in the facility until the facility is decommissioned. You could
14 envision sidewalks, parking lots, incidental materials, perhaps
15 shielding block and so forth that might be released during the operation
16 of the facility.
17 Concrete itself is a porous material, so there is the
18 potential that if contamination -- if it is directly contaminated that
19 it could soak into the material some distance. Power plants learned
20 this lesson early-on and the inside surfaces first are generally covered
21 in steel but in other cases are covered with epoxy coatings and so
22 forth.
23 Our recent experience in power plants is that potential
24 contamination within the containment structures, the most highly
25 contaminated parts of the plant, are limited to one or two millimeters
thick surface contamination.
During the decommissioning of these facilities that material
is scrabbled off with aggressive grinding type tools, also hydrolasing
and so forth, so if you can vision a four foot thick concrete structure
with two millimeters removed from the outside, the rest of it is clean.
There is some potential that in close to the reactor itself

there is activation in the bioshield. Those areas are put there to protect the workers should they have to enter. Those areas probably are not ever suitable for recycling or reuse and most likely will be disposed of at a facility.

The rest of the concrete really makes most sense to either leave it standing, demolish it and bury it onsite, a concept known recently as "rubblization" -- but it is nothing different than is done in many other industrial facilities essentially using it as beneficial fill within the site and taking allowance for any potential activity there in the model that is required under the license termination plan or releasing the concrete to a local industrial landfill or releasing the demolished concrete to a vendor who wants to use it as aggregate in nonstructural applications or perhaps in rip-wrap and things that Charles mentioned.

The 1640 document indicates the typical endproducts for recycled concrete include base for roads, stabilizer for asphalt, and aggregate for nonstructural materials. The references here indicate that recycled concrete is not used as aggregate in structural concrete such as used in houses or buildings.

The rebar issue -- generally if the material is demolished or recycled or even just demolished for disposal, rebar would be separated out and experience is that scrap dealers would tend to take that rebar unless again it came from in close to the reactor or it was activated and then it couldn't be released. It would have to be disposed of.

I have recent experience coming back from Germany last month at a clearance symposium, international. We went to a decommissioned German reactor. We watched them go through a very meticulous implementation of their 10 microsievert or 1 millirem per year clearance standard. They not only -- they cut out with diamond saws the chunks of concrete including the rebar. They surface frisked all surfaces. They

1 put it into a calibrated box counter. If it passes those tests it moves
2 through into another calibrated box counter that is operated by the
3 state inspectors and if it passes that then application is asked for for
4 it to be released.

5 Once it is granted it is released. At that point the
6 radiological considerations are done. A dealer comes in, grinds it all
7 up into aggregate. The rebar is released for scrap. The aggregate is
8 released for road bed construction in the vicinity of the facility and
9 that is how it is managed.

10 A final comment on the fly ash. It is important to
11 understand that I think you are absolutely right in what the motivation
12 was to take care of this issue. It is a resource conservation issue,
13 but it is hard for us not to acknowledge the fact that the levels there
14 that were found acceptable and do not appear to have impacted the sale
15 of that material are ten times higher than the levels being talked about
16 internationally, so the fly ash is roughly 10 millirem per year, 10
17 times the clearance levels that the international community is talking
18 about -- for perspective.

19 STINSON: Okay, Tony, we will let you go ahead, since we
20 queued you up, and take a break.

21 LaMASTRA: Just an anecdotal comment on recycling of
22 concrete. Several years ago when New Jersey was cleaning up the
23 Montclair and Glen Ridge communities that had the residue from the old
24 radium days, they tried to ship out the material -- essentially dig out
25 underneath the houses, which was dirt, not concrete, but ship it out to
a disposal site out West, and most of the states in between objected to
it. The Governor of New Jersey suggested that they take the dirt and
use it as fill for Interstate 78 in an area in Union County which
required building up about 100 feet in elevation of road bed. The idea
was to lay the contaminated material in the middle of this 100 foot
elevation fill.

1 Several groups in that area essentially picketed, so here
2 you have people essentially reacting to putting something in the middle
3 of a 100 feet of dirt in a road. Again, whatever you do, I think you
4 have to take into consideration the perception issue.
5 STINSON: Okay, thank you. I have ten to 11:00. We will
6 come back at 11:05 and continue with this discussion and move on to our
7 next material, which is soil.
8 [Recess.]
9 STINSON: Okay. We have a couple of things to cover here.
10 The first is we have a member of the public, an environmental community
11 representative, I think, who is prepared to read a written statement.
12 Is there someone who would like to do that -- we'll go ahead and
13 accommodate schedules here and ask you to go ahead and read your
14 statement at this time, if that is what you are prepared to do, and then
15 we will continue a discussion of concrete with Steve and then Jud and
16 then take -- if you still have a comment, Jud -- Is that Jud's card? --
17 and Rob and those cards that are up, and then find out if there are any
18 additional comments on copper or concrete.
19 Go ahead. Mention your name and affiliation.
20 BALCH: Okay. Is it me you wanted to speak now?
21 STINSON: Yes.
22 BALCH: I am Jeff Balch. The term "BRC" -- the term "below
23 regulatory concern" is not used these days, but I believe it is still
24 what is at issue here.
25 My disagreement with the Commission is fundamental. The
Commission is looking for safe ways to direct radwaste, and I just feel
that more effort -- all effort should be placed on eliminating radwaste
and not trying to find waste to introduce it into the public waste
stream.
My statement is a parody. This is the way that I prefer to
express my feelings about this policy. I entitle it "Below Regulatory

1 Concern." It will just take me a minute and a half to read it to you,
2 and I have extra copies for anybody who wants them.
3 I was walking to the soda shop to get me a malt when I got
4 mugged and robbed, got my head stepped on. There was a cop on the
5 corner. He witnessed the assault. He walked on over when the thieves
6 were gone. He had a big old gun. His shades were black. He was tall
7 and taciturn. He said, "I would have jumped in, but it looked like this
8 attack was below regulatory concern."
9 I asked him what he meant. He said "You hurt real bad? "
10 I said, "Some bruises and my head feels strange." He said, "And how much
11 stuff did you lose?" I answered, "My credit cards, five bucks and some
12 change." He said, "We have got a new mugging policy now. It may seem a
13 little bit stern but if the injuries are minor and the theft is small,
14 it is below regulatory concern."
15 So I walked along and passed a kid who whacked me in the
16 knee with a baseball bat. His dad was standing just a couple feet away.
17 I said, "You are just going to let him get away with that?" The dad
18 said, "Hey, the kid's still young. Give him some time. He'll learn.
19 But for now, since he has not killed anybody, he is below regulatory
20 concern."
21 So I limped back home and from the end of the lane I saw
22 flames shooting out of my house. There was a fireman there. He asked,
23 "Who is inside?" I cried, "My two kids and my spouse." The fireman
24 said, "I'm sorry, pal. We're going to have to let the thing burn
25 because with less than one spouse, four kids and two pets it is below
regulatory concern."
Now we are gathered today to discuss deregulation of some
kinds of nuclear trash. The NRC says the deaths will be few and that
NRC will save some cash. Well, I think we ought to answer very clearly
before we all adjourn that nothing that causes people to die is below
regulatory concern. Those are my feelings in this matter.

1 STINSON: Thank you. Thank you for taking the time to come.
2 Let's see. Steve, did you still have a comment you wanted to make?
3 COLLINS: I took care of it at the break.
4 STINSON: Okay, good job. Jud?
5 LILLY: I wanted to -- this is Jud Lilly from the Department
6 of Energy. I wanted to just for informational purposes second the
7 remarks that Paul had about the commercial nuclear industry's dealing
8 with concrete and the quantity issues. There are significant quantities
9 of concrete.
10 The thing that hasn't been brought up explicitly -- I
11 believe the NRC is aware of this though -- is the benefits, the market
12 value of concrete for recycle is not very high but the disposal cost for
13 the concrete are enormous, so it is the quantities and the disposal
14 costs of this as low level waste would be the driving part of this
15 equation. I just wanted to add that to the formal record here.
16 STINSON: Thank you, Jud. Rob.
17 LEIB: Rob Leib, First Energy. This is kind of a question
18 for Charles. I think you may have part of an answer for us -- the fly
19 ash issue and its reuse in concrete.
20 It is also reused in other consumer products. We know for a
21 fact that it has increased levels of natural radiation that have been
22 concentrated by the processes that go into creating fly ash. Has there
23 been an economic impact to any industry where this increased use of fly
24 ash has occurred? Has there been a public outcry? Has there been a
25 loss of jobs or money or whatever?
WILK: I don't have the statistics to --
STINSON: Would you just mention your name?
WILK: Oh, I'm sorry, I'm Charles Wilk, with the Portland Cement Association.
I understand your point on the fly ash issue. The use of fly ash again was required for Federal funded projects. I don't really

EPA did not [illegible] radiation exposure of fly ash in concrete 58 FR 42471

1 know if at the time when that was mandated whether the public was told
2 or whether it was considered that the fly ash had some radioactivity to
3 it. In truth it was not see 58 FR 42471 8/9/93
4 SPEAKER: It was.
5 WILK: And I wonder if in today's -- now if people were to
6 come up with the same argument whether the result would be the same,
7 whether the public would be interested in purchasing concrete that has
8 some level of radioactivity that is attributed to the fly ash or would
9 they just go with a natural material.
10 I wanted to say to everyone here that I am not really
11 debating your science. I understand that. What I am trying to convey
12 is that there is science and there is also a lot of other factors that
13 go into the economy.
14 There is a third point, and I don't know if this is the
15 appropriate time, but we had talked about -- Paul, you had mentioned
16 that demolition of concrete is used sometimes for aggregate in
17 nonstructural concrete. I think yesterday we discussed about perhaps
18 using used material as part of the packaging for higher level
19 radioactive waste that was destined for disposal, going to the mountain
20 of course at Yucca Mountain or maybe at WIPP.
21 The concrete that -- those kinds of facilities that they are
22 destined for -- for Yucca Mountain they last for thousands of years --
23 the concrete that I would imagine that would go into the packaging or
24 structures at Yucca Mountain would be probably the best concrete that
25 Man has ever made -- you would think, right? -- because actually the
Pantheon has been around for centuries but Yucca Mountain is going to be
there longer.
I am wondering whether or not, because right now the
concrete, used concrete is used for nonstructural things, that Yucca
Mountain would probably be the most highly -- the durability of that
would be longer than anything Man has made so far I would think of the

1 structural concrete.

2 DOE and NRC might want to consider that.

3 STINSON: Okay, good. I just want to ask sort of a final

4 question on the concrete cement area material, concrete especially, and

5 that is are there suggestions for particular alternatives as a result of

6 this conversation or because of your own thinking prior to this meeting,

7 alternatives that folks would come forward with? Prohibition,

8 unrestricted release, restricted release only to road beds, restricted

9 release to landfills -- how would you suggest managing this particular

10 material?

11 That is not assuming that all materials would be treated

12 differently, but just to illuminate for this material -- any particular

13 thoughts?

14 WILK: Yesterday didn't we talk about --

15 STINSON: Charles, go ahead.

16 WILK: Oh, I'm sorry.

17 STINSON: No, Charles, go ahead. Just mention your name.

18 WILK: Okay. It is Charles Wilk from the Portland Cement

19 Association.

20 Yesterday didn't we mention that restricted use eventually

21 becomes an unrestricted use at some time?

22 STINSON: Yes, we definitely talked about that in some

23 depth.

24 WILK: Okay, so --

25 STINSON: I just wanted to see if there's anything further

that you might want to say on alternatives, which is the third column up

there, and we did talk about it yesterday. We just haven't talked about

it much today.

We talked about it in general terms, not specific to

concrete. Paul?

GENOA: Paul Genoa, NEI. I am just throwing this out to

1 answer your question, because I think concrete is unique among the
2 materials we have talked about today.
3 The economic value associated with its recycle is limited.
4 The costs of transporting the bulk and weight and mass are high. It has
5 other environmental impacts. So perhaps a different strategy for the
6 material or perhaps the realistic uses of the material are limited and
7 so could be reflected in some kind of control scheme, but as I point
8 out, it is envisioned that the bulk of the material should be
9 decontaminated to the extent possible and should be used in its
10 location. You don't want to transport it across the country.
11 Now for certain specific material, as I talked about
12 bioshields, other areas where the activity is high, you are going to
13 have to take care of it that way, and that is how it has been taken care
14 of in the past, but for the bulk of the material you are going to be
15 able to reduce any activity associated with it down to extremely low
16 levels and the material could safety stay at the site, could be used
17 perhaps for roadbed, rip wrap, other direct reuse applications in the
18 local vicinity of the facility or disposed of in industrial landfill
19 somewhere in the location of the facility. I mean those are sort of the
20 logical outcomes.
21 STINSON: Okay, great. Let's move to the audience and see
22 if anyone has any comments that they would like to make. Two folks --
23 we will take the gentleman on the right. You have been waiting quite
24 awhile, I believe, and then in the back.
25 NECHVATAL: I am Mike Nechvatal from the Illinois EPA. We
have dealt with concrete demolition from many, many sources for many
years, in Illinois at least, northern Illinois. It has no value. It is
a negative value even when taken to recyclers. They pay the recycler to
take it.
In fact, those recyclers in most cases would not be there
were it not for state grants that buy them the equipment to crush rocks

1 and such. Even with that in its place, the amount of illegally disposed
2 construction and demolition concrete waste is very high in northern
3 Illinois and Chicago itself had some examples of extreme disposal, like
4 40 feet high of square city block. I am not kidding.
5 There were several of those. How do they get cleaned up?
6 Most of them had public funds used to take them to quarries where they
7 were disposed of as clean construction. It was just concrete. It was
8 not concrete and other kinds of construction material. It wasn't
9 contaminated in any way.
10 My point is that there is no market for this material.
11 Certainly if you have to take it any distance at all there is actually
12 no market in terms of geography below Chicago. In central Illinois and
13 more rural areas of Illinois there is not even a market for recycling
14 whatsoever so it is taken to either landfills -- actually landfills kind
15 of like the stuff. They build roads out of it a lot, so to some degree
16 they like construction demolition waste, or it is taken to landfills
17 solely for its construction concrete disposal or a lot of it is simply
18 just discarded on the side of the road, and that is really bad.
19 So the idea that there is an actual market for this -- this
20 is actually recycling -- is kind of tenuous at best. It is just another
21 disposal method.
22 One option -- many industries dispose of inert waste on
23 their own property. The stuff could be left, I suppose, if it is inert
24 and clean, it could be left on site.
25 STINSON: That's certainly part of what Paul is suggesting I
think might be most practical. In the back? Come forward and just
state your name and affiliation if you have one.
QUASEY: My name is Kathy Quasey. I belong to several
different groups, interfaith groups and peace and social justice groups
and some environmental groups, but today I want to thank you for the
opportunity to at least offer the option to talk to you. I come to talk

1 to you today as an individual, as a human being.

2 I am a writer and a marketing person. I have a Master's in
3 Business. I understand the whole marketing opportunity of this industry
4 nationwide and what it represents in a number of industries. As a
5 writer I have researched this for over three years now, so I come with
6 some knowledge of what we are talking about.

7 But all of that aside, I just wanted to provide some
8 testimony today regarding some of the personal experiences I had this
9 year.

10 This spring I met a woman who is from Russia. She is a very
11 professional person. She was at a resort outside of Belarus when the
12 Chernobyl accident happened. She and her husband had very professional
13 jobs.

14 A few months later she miscarried terribly malformed twins.
15 A few months after that when she was pregnant again she aborted
16 terribly malformed triplets. Her daughter has a very bad kidney
17 ailment, and as a result they fled the area. They came to the States.
18 She is now working a two-bit job and her husband is working driving a
19 cab in the city.

20 This summer I met some more children of Chernobyl. Many of
21 these children were 10, 13 years old now -- how long ago was it? '86,
22 right? -- and I tell you just as an individual if you can just open your
23 hearts and think about your own children or the children that you can
24 see, and you see this one little girl who is about 10 years old and she
25 had a very severe vision defect and she had as a result very timid
steps. She was hunkered down. She was beautiful and she was paralyzed
at the same time in her relationship with the world around here.

What we know of radioactivity we can't claim any innocence
of youth anymore. My father worked in this industry as did a lot of the
parents of my friends growing up. They were all wonderful men, good
family people. They had great intentions. They thought they were

1 solving one of the world's great problems. But here we are many decades
2 later and we know that we have invented something that we don't have
3 solutions for and at this time no matter how we treat it or recycle it
4 the truth is at this time we cannot contain it. We have invented
5 something that will last well beyond us, beyond the Romans and the
6 Greeks and Henry VIII and President Reagan and President Clinton and
7 well into the future, so what we are encountering is actually if you can
8 consider that the exposure and the way it is being presented at this
9 time the multiple exposures with no control within a household, within
10 the frames of households.

11 We have some testimony from indigenous people who live in
12 radioactive, contaminated houses. They have high rates of cancer, and
13 we are talking about exposing our unborn children as well as our living
14 relatives, and I ask all of you to think about yourselves before you got
15 your titles, think of yourselves as human beings before you had
16 positions of authority, and to contemplate what it means when you look
17 at these children who essentially are causing the extinction of their
18 own family trees and in Russia we are looking at a very high death rate
19 now.

20 So I feel for you. I have a lot of empathy because I
21 understand there is an urgency to do something, and we are Americans.
22 It is a big part of our culture to do something, but maybe at this time
23 we may need to think about -- with humility what we have done and to
24 recognize that we don't have all the answers right now, and until we can
25 guarantee it that perhaps the best thing we can do is do nothing. Thank
you very much.

STINSON: Thank you for your time. Are there other comments from the audience on particular issues we have been talking around, concrete or copper? Have we missed anybody in that comment period?

[No response.]

STINSON: Okay. Thank you. We are going to move on to soil

1 and try to cover soil and trash before we take a break for lunch. I am
2 not sure how that is going to go. Obviously that means it is a later
3 lunch, if people are willing.
4 Are there any -- I believe trash comes from a suggestion
5 from the power industry that there is an array of materials that are in
6 common trash that must be dealt with. I think that it would be helpful
7 to have -- I'm doing soil. I am looking up there and so the soil issue
8 actually came up early in the processing and NRC has initiated a study
9 to examine soil in a similar format to the materials examined under
10 NUREG-1640, and we heard a presentation on that yesterday.
11 Are there any folks here that have particular experience
12 with potential uses and disposal of soil from facilities that would be
13 able to talk a little bit about -- in a similar vein that we have done
14 so far? Okay. Kristin and then Paul.
15 ERICKSON: Academic and medical institutions, as I said, you
16 can find a little of everything there and a lot of some things. Here we
17 have some soil as waste that we get from researchers who are doing
18 research with soil, either the main area we have are the people who are
19 doing environmental remediation studies -- in other words, does a
20 biological organism eat up the methanol or the dioxin or whatever
21 chemical contaminant or not, and the way that they do that is to analyze
22 sometimes with radioactive tracers labelled to the methanol or the
23 dioxin or whatever it is.
24 What we typically have done with this is fairly
25 straight-forward as far as our program is concerned. It is a little out
of the routine. We do a little more analysis. We get this soil. We
have them label it with what they know, they put in there, and then we
always verify -- in fact, every bit of waste -- we get in liquid
waste -- we analyze it in my own lab, again to see what is in there as
far as isotopes and concentrations and chemicals.
The soil is something we just do a variety of wet methods

with. You can do a dry meter reading on grams, or minigrams, and general screening of big volumes which is done and then also some wet methods to detect other isotopes that can't be detected with a portable Geiger counter instrument and is how we release it.

I don't think that soil is a huge problem for us, but once again when you look at the decommissioning of areas and buildings in future years -- let's say at the point where we decommission our cyclotron -- the soil underneath that machine will likely be activated to some degree. We have very thick concrete underneath to shield that and calculated for that, and we have in fact drilled corings down through, prior to onset of new machines and in our building phase.

We have analyzed that soil and found nothing. With this big, huge more powerful machine that we will commission next year we expect to see something so it will be an ongoing monitoring.

At that point you are talking about very low levels, looking at environmental level measurements that we would have to do. That's it.

LESNICK: Kristin, may I ask you, is it your sense that for similar, for other research institutions that the largest volume then we'll be associated with with our large facilities eventually decommissioned, is that where you see the largest soil implication?

ERICKSON: I don't think so. I don't think in routine -- that's the abnormal, the cyclotron.

LESNICK: Right.

ERICKSON: Or power reactor, if they have a research reactor it might be a problem there. We did decommission a research reactor, by the way, and found nothing in the soil. We had so much concrete around it -- it was a very small reactor, however, so the larger ones may see some, just like our larger cyclotron might, but routine research and develop, biological research, we don't even see it on the surfaces of the benches because we are so -- I neglect to call it -- so "Nazis" --

1 "radiation radbusters" -- we make them keep it so clean, the chance of
2 it being in soil is essentially nil.
3 CARDILE: So, Kristin, may I ask you if NRC was to try to do
4 something from a dose, what would you look to NRC to do if it were to
5 try to do something from a dose-based standard in the future, thinking
6 about these alternatives we were talking about yesterday.
7 That was Frank Cardile, just for the record.
8 ERICKSON: Okay. Kristin Erickson, Michigan State
9 University again. I am talking "big picture," overarching, what I would
10 like to see as far as regulations, rulemaking. I would like to see the
11 development of a standard and education and guidance for, first of all,
12 the radioactive things that people and institutions and facilities will
13 encounter -- what do they encounter, what isotopes will they encounter
14 there, what instruments should be used properly and what can those
15 instruments do and then having those instruments calibrated according to
16 the isotope.
17 Now that is already in the rulemaking in Part 20. Many
18 people don't adhere to it, but it is there. You must have your
19 instrument calibrated for the isotope to be measured and know these
20 deficiencies with certified standards or traceable standards.
21 Finally, what I would like to see is not a dose standard
22 such as one millirem for the entire piece of equipment, although that
23 could be a secondary guidance, I would prefer to see something like we
24 have for air and water where it is a flat concentration, so many
25 microcuries per cc of material, which is in fact ultimately a dose-based
standard. It relates to the dose and considers the pathways, the
radiotoxicity of the isotopes, the forms of the isotopes, et cetera.
That would be the easiest way -- in fact, it goes totally hand-in-hand with
what is already existing. It is known. It is usable. It is easy to
measure, easy to train, easy to document, and it is very, very
conservative, so I would like to see that happen for all of these

1 materials including soil or whatever.

2 LESNICK: Thank you. Could we go next door to Susan and

3 then we will come down to you, Paul.

4 LANDAHL: Susan Landahl, Commonwealth Edison.

5 My experience with soil has to do with my previous position,

6 which was at a licensee in Unit 1, excuse me, Region I, so I am not 100

7 percent sure that this is uniformly applied across all the NRC regions

8 but I will throw it out at least as something in Region I.

9 We had the issue of free release, which I think we have

10 talked about or release for unrestricted use, but particularly with soil

11 at least a boiling water reactors there is measurable contamination over

12 time at very, very low levels all over the site.

13 In this particular case the bind that we are in is even

14 simple demolition, or say we are replacing asphalt or we are laying new

15 pipe for something. There is some quantity of soil that is very, very

16 slightly contaminated and technically we can't even distribute that at a

17 low-lying part, another part of our site, if you follow me, so we can't

18 release it from the site except as radioactive waste. We can't even use

19 it to fill in the low spots somewhere else because -- without applying

20 for a particular 2002 Part 20 exemption because we don't have a license

21 to bury waste, which technically is what we are going if we move that

22 dirt from one point to another.

23 So from a practical standpoint it is just -- that one really

24 doesn't make any sense to me I guess is what I am saying and I just want

25 to throw that out as another issue in addition to just the unrestricted

release of the material. Thank you.

LESNICK: Let's come down to Paul and then Charles -- again,

comments about soil, please, how it is being dealt with now, suggestions

you have got, particular aspects around this material that NRC ought to

be thinking about. Paul?

GENOA: I am Paul Genoa, NEI. Yes, the soil, to expand the

1 types of soil materials that might be of concern at least at utilities,
2 you know, I think you just heard that fundamentally there are currently
3 not only EPA but NRC criteria for the releases of materials in air and
4 water. There are effluents from power plants.
5 These effluents result in small amounts of material
6 distributed around the power plant site. If you were to go and be
7 required to dredge a discharge canal because it had silted in or filled
8 in, you would need to get an alternate disposal request processed to
9 allow you to do that and to do anything with the material because in
10 fact if you monitored it you would see activity.
11 Frankly, if you monitor it, you see activity anywhere, and
12 of course in our environmental monitoring -- and that is the level that
13 we need to go to for detection -- we can find activity anywhere,
14 anywhere, on our site, off our site, in your homes, whatever, so it
15 makes it very difficult when we have to move material for whatever
16 purpose, to show that that material is not our licensed material or if
17 it is our licensed material to do something with it.
18 I gave you the example of dredging a canal. There's also
19 cooling towers that you see that people mistake for reactors, but those
20 cooling towers are there to cool the cooling water. If they pull the
21 cooling water from the discharge canal or the vicinity of the discharge
22 canal, they could pick up some of the liquid effluents that are released
23 over time and they concentrate it just like you would concentrate in a
24 tea kettle when you are boiling it down. You get that residue.
25 Well, they actually in many cases concentrate
naturally-occurring activity or activity from other sources or activity
upriver from another facility. It makes it very difficult to determine
what the appropriate -- what you are allowed to do with that material.
Other examples are you could envision that even if you used
the best monitors available to check personnel, people, equipment,
moving out the facility, there are trace amounts, extremely small, that

1 will move in and out of the facility. There are concentration
2 mechanisms -- your feet, your shoes, walking across the clean part of
3 the turbine hall. Every night someone comes in and cleans the turbine
4 hall with a mop and a bucket. They pour the mop and the bucket-water
5 down the drain. Over time, there can be detectable activity, extremely
6 low, but detectable activity that would concentrate in the sludge and
7 sediment in the septic tank. For that matter, if any of your workers
8 had a medical treatment, you would also find that activity in the sewage
9 system treatment and that sediment and sludge needs to be pumped out
10 routinely and dispersed, and we have guidance on how to do that, but it
11 is relatively inconsistent.
12 There are just yard drains for stormwater runoff. If you
13 have effluents around the plant and you have people walking in and out
14 of the plant over time, 20 years, 30 years, 40 years of operation, there
15 is a potential for that material to exist out in the environment. When
16 it rains it goes down the storm drains and it concentrates in sediment
17 and soils around the drains.
18 Fortunately all these materials are anticipated, found,
19 dealt with during decommissioning, but sometimes they have to be dealt
20 with during operation so in operational conditions we need to have some
21 standards to determine what we can and can't do with the material.
22 Again, soil is very similar to concrete. There is not a
23 significant economic value associated with the soil and the material
24 needs to be dealt with, but there is a high disposal cost and
25 transportation cost for soil if it has to go across the country to deal
with risks that are in the same range as the soil in anyone's back
yard -- so it seems a little bit difficult to deal with.
There are also opportunities to clean soil in certain cases.
There are technologies available to do soil washing and remediation
that would allow that soil then to be released to be used for clean fill
or left onsite, but again you need standards to assess whether the

1 cleaning operation was done properly or not.

2 We do have a useful tool -- 2002 Alternate Disposal Requests

3 have been used by the industry. We hope that they will continue to be

4 allowed to be used by the industry and they can allow us to deal with

5 some of the situations, I have personally dealt with them, that allow

6 for state-approved disposal in a local landfill or onsite or whatever,

7 but they are cumbersome, they are expensive, they are difficult, and all

8 of the analysis associated with them would not have to be reinvented if

9 a standard was determined.

10 It would make it more pro forma, easier to manage, and the

11 disposal type options, as I mentioned, could be disposal onsite,

12 disposal offsite. They could be land-farmed. They could be used for

13 beneficial fill in low-lying areas, et cetera.

14 LESNICK: I know we have got a question from Tony and I will

15 remind people -- there are some folks coming and going -- after we

16 discuss each material, there will be opportunity for public comment and

17 so we are in the middle of a discussion about soil but after that we

18 will have public comment. Tony.

19 HUFFERT: This is a follow-up. Tony Huffert, NRC.

20 Paul, you mentioned not only soil, but I think sludge, from

21 cooling towers or septic tanks, for example.

22 We are making a differentiation between soil and sludge in

23 our analysis. We are not currently going to be doing sludge. Do you

24 think this is a material that should be added to our list that we should

25 be taking on right now?

GENOA: I do, for two reasons. One, that material is probably more problematic in day to day operations, and two, the analysis for the materials should be very similar.

I can see differences for sewage sludge, but you are already doing some analysis for that because other generators are allowed to use sewage disposal intentionally, but the end-products are similar enough

1 to soil that I think it might simplify your consideration.

2 I would also include sediments from settling ponds and so

3 forth. There are power plants and other facilities that do have

4 settling ponds. Actually, many of them are settling ponds for fossil

5 facilities, but there are because of effluents and because of other

6 situations, there are opportunities for concentration there, from storm

7 water runoff or whatever, to levels that are detectable using

8 sophisticated instruments.

9 Given that, there ought to be a way to evaluate what the

10 appropriate disposition pathways should be for those materials.

11 LESNICK: Charles, you have waited patiently.

12 WILK: Yes.

13 LESNICK: Do you have some comments about soil?

14 WILK: Yes, I do. Susan Landahl -- is that the correct

15 pronunciation? -- you talked about having to -- the problems of moving

16 soil, contaminated soil, and using it as fill at the facility, and Paul

17 mentioned 2002. I am not familiar with that, but I am familiar with

18 under the EPA Superfund Program they have sort of a problem, too, for

19 cleanups. There was something -- how CIRCLA related to the Resource

20 Conservation and Recovery Act, and they came up with an idea called a

21 CAMU. I was wondering if the NRC might want to look at how that is

22 done, which in theory exempts a Superfund action when they pick up

23 waste.

24 It used to be that when they picked up that waste it would

25 become under RCRA jurisdiction if it was managed within the facility and

a Corrective Action Management Unit would exempt that, so you wouldn't

have to deal with getting a RCRA permit to put that material back down

at the facility.

I am not familiar with 2002 and I don't know how that

relates but NRC might want to look at how the EPA handles that

situation.

1 LESNICK: May I ask Kelly or David, anything you would care
2 to comment about from the Department of Defense perspective about soil,
3 your experience, your advice for the agency on this?
4 CROOKS: Sure. Kelly Crooks, U.S. Army.
5 Yes, we do deal with a lot of soil cleanups, but typically
6 they are for decommissioning activities, either decommissioning of a
7 license or of a part of a license, and maybe that would be one question
8 I would have to the Commission is how would what we are talking about
9 here tie in with the decommissioning requirements and the 25 millirem
10 per year standard there.
11 One of the issues that we have, you know, that I have
12 mentioned that of course we have installations in every state and you
13 are dealing with every waste compact, is at the start of any remediation
14 project one of the big issues is developing the release criteria for
15 that particular site. We typically deal with the NRC and also EPA and
16 the state the installation is located in, and to get buy-in from all of
17 those regulators to agree amongst themselves in negotiations with us as
18 a generator typically takes months if not in excess of a year, which can
19 wreak havoc with trying to manage a budget and trying to schedule
20 activities.
21 Of course, a lot of times we will end up doing a cleanup in,
22 say, Vermont in February, which doesn't work real well, trying to get
23 the trucks out and across the country to Utah, so one of my questions --
24 I know Mr. Collins had mentioned yesterday that the states will reserve
25 the right to determine their own standards, no matter what the NRC
decides to do here, and another question I would have for the Commission
is what kind of buy-in are you getting from the states in terms of
whether they will agree to go along with any standards you would set if
they would accept that at face value for approval for release criteria
within their state.
LESNICK: What was the first question you had? Was it for

1 Steve?

2 CROOKS: I had a question. I had mentioned that when we

3 typically do soil remediations it is in conjunction with

4 decommissioning --

5 LESNICK: Yes.

6 CROOKS: Decommissioning is the term for license

7 termination, and you can either terminate an entire license or you can

8 terminate a portion of your license if that particular site is mentioned

9 in the license, so to me we have decommissioning rules --

10 LESNICK: You want to know the relationship between this and

11 that?

12 CROOKS: Yes.

13 LESNICK: Thank you. Good. Appreciate the clarification.

14 Anyone from NRC first care to comment?

15 MS. HOLAHAN: All right. Patricia Holahan, NRC. A license

16 termination addresses decommissioning a facility and what is left

17 onsite. What we are discussing nere is what can be -- we are

18 considering a standard for what could be released during normal

19 operations offsite, either in the form of possibly a restricted release

20 or unrestricted release and, as I said, at this point we haven't set a

21 standard or looked at a specific option, and that is where we are still

22 exploring how to deal with material that is onsite that licensees may be

23 looking to release and move offsite.

24 Tony, do you want to address specifically the soil?

25 HUFFERT: Tony Huffert, NRC. When it comes to soil, I guess

an example might help.

If you had some soil that was near a down-spout, as Paul Genoa mentioned, or if you had a spill that was near the foundation of the building that was readily cleaned up, that would be something that would be done during operations, but if you had to go underneath the foundation of a building during decommissioning that is probably where

1 you would be generating more volumes.

2 Now it is unclear right now whether or not the licensee

3 would be able to release that material under this initiative or if it

4 would be done at the time of decommissioning as part of the

5 decommissioning plan.

6 We have not worked that out yet, but what we are envisioning

7 right now is relatively small amounts of soil that would be released

8 under this initiative.

9 LESNICK: Okay, and then -- go ahead, Kelly. Do you want to

10 quickly respond?

11 CROOKS: Yes. Just one other comment. That is kind of what

12 I figured. I was just also going to mention that with soils this is an

13 area where the restricted use or restricted release I think has I think

14 some applicability, at least for us in the military where you have an

15 enclosed facility that has I think ample security associated with it to

16 keep out intruders and ongoing operations that may not be rad operations

17 but may be done in the same area that the rad operations were that

18 contaminated the soils.

19 Specifically for us I know we are dealing with some of our

20 outdoor firing ranges where we had shot depleted uranium ammunition.

21 Some of those we pretty much restrict test firing now to indoor ranges,

22 but those outdoor ranges still fire other ammunition that doesn't

23 contain depleted uranium and so we are facing the prospect of having to

24 clean up the DU from the firing range, knowing that the day it is

25 cleaned up we are going to start shooting other ammo that contain heavy

metals onto the same areas we just cleaned up.

In essence, you know, we would be looking at cleaning up the same area twice, which doesn't make much sense, so in that case I think that is a perfect scenario for a restricted release scenario and would hope that the NRC would seriously consider options like that.

LESNICK: Thanks, Kelly. Let me take the comments of the

1 cards that are up on soil, public comment, and then try and start of
2 trash and ask NRC Staff is there anything in particular regarding soil
3 you would like to pose to the group also. Susan.
4 LANDAHL: Susan Landahl, CommEd. I just want to go back to
5 Tony's point on sludge and another angle that if the NRC is going to
6 include that into the rulemaking there's really kind of three
7 components.
8 There's the semisolid sludge -- I am talking about sewage
9 treatment facilities and some licensees have some form of sewage
10 treatment onsite. There's semisolid, sludge, there's a liquid, and then
11 what some folks are doing is they take the solids and they form into a
12 truly dried solid brick which is then released and that introduces just
13 another variable into the required sampling, you know.
14 Do you take the pre-dried material and put it on a gamma
15 spec and count it to some environmental lower limit of detection or do
16 you take the solid brick that remains and count it with your surface or
17 your box monitor or whatever? If we are going to go that way, you
18 probably need to address both aspects of the potential release path.
19 LESNICK: Thanks, Susan. Why don't we just swing next door
20 to Steve before we come down.
21 COLLINS: I was just curious whether or not the Army
22 representative had ever asked the appropriate NRC region or headquarters
23 for an exception to that timeliness in decommissioning requirement when
24 the reuse there is for heavy metals but basically required to be cleaned
25 up again later anyway, because certainly most of the states would use
common sense and say we will waive the timeliness requirement and you
commit that you will clean it up when you are through using it, because
you are going to have to clean it up again anyway.
We would certainly consider that a valid reason not to clean
it up and then start reusing it again the next day for recontamination
by some other heavy metal that would have to be cleaned up.

1 LESNICK: Sounds like something you might want to have
2 particular conversations with later.
3 CROOKS: The short answer is yes, we have.
4 LESNICK: Can we move to Paul and Charles and then Jaz.
5 GENOA: Paul Genoa, NEI. Just a reflection on the issue
6 that you raised about decommissioning at a 25 millirem plus ALARA for
7 unrestricted release of a facility, and carry that discussion just a
8 little bit further.
9 The fact is that, as was pointed out, that is for residual
10 activity that may be associated with structures and soils at a facility
11 but the conundrum you get into is the day after, and that material can
12 be as high as 25 millirem if it meets ALARA criteria or less if that is
13 appropriate.
14 The conundrum is that the next day a nonlicensed facility,
15 it is unrestricted. That soil can go anywhere for any purpose, and it
16 probably won't and it has already been evaluated that if it did it would
17 be safe, but there's a regulatory dichotomy there between what you can
18 do day one and what you can do day two, so I think there is a need to
19 address that.
20 The second thing, and this relates, Kelly, also to your
21 point of the use of soil, and let me tie it also back to concrete,
22 because I forgot. Last week there was a IAEA international symposium in
23 Virginia with people from all over as well as EPA, NRC, DOE and folks
24 from around the world.
25 There were some very excellent examples of approaches that
you could view as restricted release for some of these materials and I
think it was actually at DOE so -- don't hold me to it, but the concept
was that there was already a cleanup going on in a facility, in a
community and the level of activity associated with the material was low
but it needed to be controlled.
The decision ultimately was that that community wanted to

1 upgrade their airport and were very interested in having the land
2 associated with the facility for an enhanced airport facility and that
3 the soils associated would not need to be cleaned beyond a certain level
4 if, in fact, they were covered with runways and buildings and everything
5 else, so in effect it ended up like a restricted release scenario where
6 the public gained benefit and the Government reduced costs and everybody
7 seemed to be happy.
8 So, you know, there are innovative ways to deal with this,
9 but you do have to set some basic -- you know, what's safe -- kind of
10 standards before you can do that.
11 LESNICK: Last comment on soils.
12 DEVGUN: I think Paul already made the point. I will
13 elaborate on that a little bit, because I think I would be really
14 concerned about the dichotomy of applying whatever criteria we come up
15 with here for soil which would be based on pretty well close to 1
16 millirem, whether we accept that right now as a target or not and the
17 license termination rule.
18 It took many, many years of effort for the Commission to
19 come out with the LTR and have it out on the street in 1998 as 25
20 millirem, and the way it is applied is to survey at the site under
21 MARSIM, the final status survey, which means deriving the DCGLs,
22 deriving the concentration guideline levels in soil, mostly in soil.
23 The NRC can include the structures, so I mean that itself tells you that
24 we have already something for soil as a standard to clear and nothing
25 stops -- like Paul said after you have terminated the license you can
do what you wish to do with that site including the soil, so that
dichotomy is a real one and it should be looked into.
The other thing I would mention is like the Department of
Energy I had some experience working through Argonne National Laboratory
for many years on DOE, RESRAD and other programs. We typically derived
these soil concentration guidelines, and they were based on a certain

1 dose level and then you derive where we had the levels which are already
2 codified through DOE orders or what-not as, say, 5 picocuries per gram
3 for Radium-226 and 15 below a certain level in soil, but where we did
4 not have, for example, for uranium isotopes, we derived them based on a
5 pathways analysis method, so whatever we do here should not come in
6 conflict with what is existing already, otherwise we will be revisiting
7 a lot of these soil issues again and again.

8 LESNICK: Thank you, Jas. Let's take some time for a public
9 comment. As you know, after each discussion of material we have opened
10 it up for comment, particularly about the material we just discussed.
11 In some cases people make broader comments, so let's see if anyone would
12 like to take advantage of this time for public comment. We do? Okay --
13 if you wouldn't mind identifying yourself.

14 FOUSHEE: My name is Lea Fouchee. I am Cherokee and Opinny
15 Chief. I have talked with Barbara Stinson before about being here. I
16 would like to thank you for allowing us to have this opportunity. We
17 probably would have come and taken it anyway, but thank you.

18 As an indigenous woman it is my responsibility to think and
19 then act for seven generations into the future using the wisdom and the
20 knowledge of my ancestors for seven generations from the past. This
21 process does not do that. It does not protect our Mother Earth. It
22 puts us in a situation where we are threatened for geological time.

23 We now have cancer as the number two cause of death in
24 Native American lands in North America, both women and men -- it is the
25 leading cause of death over the age of 45, and it is not just Native
people. How many of you in this room have had a loved one die of
cancer? Raise your hand. How many of you?

[Show of hands.]

FOUSHEE: Everybody, raise your hand. We know what causes
it. The Federal Government and the nuclear industry have long been in
bed together and now you want us all to be in bed with the nuclear

1 industry. That is not right. We will not allow you to do that to the
2 future generations.
3 I would like to commend the steel industry. They are the
4 backbone of this Western civilization. Without the steel industry this
5 civilization would fall. You are threatening the steel industry with
6 things they do not want. They have told you that. They have told us
7 that. This cannot be done.
8 Just because your idea of regulation is burning or burying
9 or dilution does not mean that it solves the problem. If you destroy
10 the foundation upon which we stand as a civilization, our Mother Earth,
11 our sacred land, our children, you ignore your ancestors and you ignore
12 the very foundation of your corporate Reich, your civilization will fall
13 and anarchy will prevail, and you are seeing that on the rise, and we do
14 not want that. We want to work for a future for our children. I thank
15 you for your time.
16 LESNICK: Thank you, Lea. Anyone else?
17 If you don't mind, please identify yourself.
18 BENCHELOW: My name is Carrie Benchelow.
19 LESNICK: You could pull that up closer to you, Carrie.
20 BENCHELOW: Sure.
21 LESNICK: Just make sure you are close to the mike so that
22 people can hear you and it goes on the transcript.
23 BENCHELOW: Is that better?
24 LESNICK: Yes, that's much better.
25 BENCHELOW: Okay. As I said, my name is Carrie Benchelow.
I am a member of the Board of Directors for the Nuclear Energy
Information Service --
LESNICK: Even a little closer. I'm sorry to interrupt.
BENCHELOW: -- based in Evanston, Illinois.
[Pause.]
BENCHELOW: Thank you. I would like to read a statement on

1 behalf of the following organizations, and those organizations are:
2 Friends of the Earth, US and UK; Physicians for Social Responsibility;
3 Alliance for Nuclear Accountability; Low Level Radiation Campaign, UK:
4 US Public Interest Research Group; Project on Government Oversight;
5 North American Water Office; Illinois Public Interest Research Group;
6 Citizens for a Healthy Planet; BOND; Coalition for a Safe Environment;
7 Help the Environment; AWARE; Don't Waste Ohio; Ohio Citizen Action;
8 Environmental Coalition on Nuclear Power; Central Pennsylvania Citizens
9 for Survival; Shunda High Network; Nuke Watch; Citizens Action Coalition
10 of Indiana; Don't Waste Michigan; Coalition for a Nuclear Free Great
11 Lakes; Citizens Resistance at Fermi 2; Women's International League for
12 Peace and Freedom; Citizens Awareness Network; Committee on New
13 Priorities; MCS Health and Environment; Chicago Student Environmental
14 Alliance; Home of Peace and Justice; West Michigan Environmental Action
15 Council; and the Nuclear Information and Research Service.
16 The statement is as follows:
17 Our call to the Nuclear Regulatory Commission is to fully
18 regulate and isolate radioactive wastes and materials and anything they
19 contaminate, no matter what level. The radioactive legacy of atomic
20 weapons and energy production should be isolated from the public and the
21 environment. We don't want nuclear power and weapons waste released,
22 cleared, deregulated, exempted, generally licensed, designated de
23 minimis, unimportant or BRC -- Below Regulatory Concern, or by any other
24 creative, direct or deceptive means allowed out of nuclear facilities
25 and into the marketplace or the environment on any level.
The current methods of releasing radioactive waste from
commercial licensees and weapons facilities must immediately cease. No
future radioactive releases should be permitted and a full accounting
and recapture of that which has already been released should commence.
Using radioactive wastes in consumer products poses unnecessary
avoidable, involuntary, uninformed risk. The consumers, the producers,

1 the raw materials industries don't want these radioactive wastes or
2 risks.
3 It is not credible to believe computer models can calculate
4 and accurately predict any or all of the doses to the public and the
5 environment from all of the potential radioactivity that could be
6 released over time. Projections of acceptable or reasonable risks from
7 some amount of contamination being released are meaningless and provide
8 no assurance.
9 Monitoring for the specific types and forms of radioactivity
10 that could get out could be very expensive and tricky to perform. Hot
11 spots can sneak through. We can't trust the nuclear generators to
12 monitor their own releases. No matter what level the NRC sets for
13 allowable radiation risk, dose, or concentration, it will be difficult
14 to impossible to measure, verify and enforce. Who is liable if the
15 legal standards NRC intends to set are viable -- or violated?
16 For decades the public has clearly opposed releasing
17 radioactive materials into commerce. We continue to do so. Naturally
18 occurring background radiation cannot be avoided except in some
19 instances -- for example, reducing radon in homes -- but its presence in
20 no ways justifies additional unnecessary, involuntary radiation
21 exposures, even if those exposures might be equal to or less than
22 background, nor does it justify shifting the economic liability from the
23 generators of radioactive waste and materials to the economic and health
24 liability of the recycling industries, the public and the environment.
25 We fully support the complete opposition and zero tolerance
policies of the metal and recycling industries, the management and the
unions. We appreciate their efforts not only in opposition to
legalization of radioactive releases but in their investment and
detection equipment and literally holding the line against the
radioactive threat to the public. They should not have to be our de
facto protectors. The NRC, DOE and EPA must act to prevent the

1 dissemination of radioactive wastes into recycled materials and general
2 commerce.
3 The problems that have been experienced by the steel
4 recycling industry with generally licensed sealed sources getting into
5 their facilities and costing tens of millions of dollars to clean up
6 should serve as a warning not to let any other radioactive wastes and
7 materials out of regulatory control.
8 The fact that radioactive waste is already getting out
9 should not be use to justify legal levels allowing more out. The NRC,
10 EPA and DOE should prevent future and correct past releases. The fact
11 that other countries are releasing radioactive materials into the
12 marketplace is no excuse for us to legalize it. The United States
13 should take the lead in preventing contamination of the international
14 marketplace. We protect ourselves best by not facilitating
15 international radioactive commerce.
16 The fact that it is difficult and expensive to monitor and
17 detect radiation does not justify its release. It is all the more
18 reason to prevent any waste getting out so we don't have to check
19 routinely for contamination.
20 LESNICK: One more minute. One more minute.
21 BENCHELOW: The nuclear industry and regulators should be
22 aware of what materials at reactor and weapons sites are waste and which
23 have been contaminated. Those materials must be isolated, not released
24 at any level.
25 The mindset of the NRC appears convinced that it should
legalize radioactive waste being recycled into the marketplace. Our
demand for prohibiting releases has been considered unreasonable. That
is why many of us are refusing to spend two days at this meeting.
Until the logical public positions that radiation exposure
should be prevented and that radioactive waste should be isolated, not
recycled into daily use are considered reasonable, our time is better

1 spent educating the public on what you are planning than here debating
2 levels we will never expect and methodologies we will never trust.
3 Thank you.
4 LESNICK: Thank you. If you have an extra copy, if you
5 could leave it, we would appreciate that.
6 Would anyone else like to comment at this time? Yes,
7 please. If you don't mind, please identify yourself.
8 WOLDENBERG: Yes. Can you hear me?
9 LESNICK: If you can get closer, can you tilt the microphone
10 down a little bit towards you?
11 WOLDENBERG: Okay.
12 LESNICK: That's better.
13 WOLDENBERG: Can you hear me now?
14 LESNICK: Thank you.
15 WOLDENBERG: All right. Just two days ago --
16 LESNICK: Could you identify yourself, if you don't mind?
17 WOLDENBERG: Oh, sorry, yes. My name is Sue Woldenberg. I
18 live in the area, but what is happening here affects everybody
19 everywhere.
20 Now I have only heard about this two days ago and when I
21 heard about this I said, gee, what they are trying to do -- this doesn't
22 sound right. Can people in their right minds and hearts allow something
23 like this? And it scared me.
24 I have never done this and I am shaking right now, because I
25 said to myself, well, you know, I got to find out a little more about
this. This doesn't seem -- this doesn't seem good -- and this is going
to be occurring here in the United States when we are all trying to
think how can we make this world a better place, whether it is
individual like me -- because I am representing myself. I am here
because I am just curious and, my goodness, if you have the ability to
have some kind of check on controlling what others are trying to do that

1 are wrong, please, use your conscience, use your intellect, use your own
2 self, like me. I came here by myself.
3 I think what you are doing, what you have power to do is to
4 check what is going on that is wrong and please vote with your intellect
5 and your conscience and do what is right. Thank you.
6 LESNICK: Thank you very much. Anyone else care to comment?
7 Yes, please.
8 BAIMAN: I'd just like to tell a little story.
9 LESNICK: Would you re-introduce yourself? I know you spoke
10 yesterday but if you don't mind.
11 BAIMAN: I spoke yesterday. I am Sydney Baiman. You heard
12 me shout yesterday, so today I am going to tell a story.
13 My niece used to live in Syracuse, and we drove up from New
14 York City and she had a dog, and when we arrived on a Sunday night we
15 took a pail of water. She gave the dog some water from the tap, and the
16 dog refused to drink the water and we didn't understand why, so then we
17 had to get some spring water for the dog.
18 Then we found out that there was a steel mill -- I think it
19 is AllSteel, is that right? -- I was talking to one of the gentlemen --
20 nearby, that had just recycled radioactive steel with cesium in it, and
21 apparently it was called "orphan waste" -- somehow these wastes by
22 accident -- I don't think it was an accident, I think it was a Mafia
23 job -- get to these steel mills.
24 Okay, so this dog refused to drink the water and of course
25 it was June, so all the cesium, radioactive dust just from this little
bit of recycling blew over on the strawberries, of course, and all the
beautiful gardening that was going on. Also, this radioactive dust went
to the reservoir so that is why the dog wouldn't drink the water, and
there was a little article this big in the tenth page of the newspaper
saying that this steel company had recycled the cesium.
Now this is just one incident of what happens when you

1 recycle this stuff. It is not just going into the products. It is
2 going into the land, the sea, the air, and guess what? -- pregnant woman
3 comes along and eats those strawberries -- what is going to happen to
4 her baby? Will she be a Down Syndrome or retard because she didn't know
5 that this was going on?
6 All right? I think we are playing with -- what is happening with this
7 industry is really unconscionable and you know you are killing people
8 with doing this. That is all I have to say.
9 LESNICK: Thank you very much. Anyone else care to comment?
10 Yes, sir, please.
11 WILLIAMS: My name is Chris Williams. I'm the executive
12 director of the Citizens Action Coalition of Indiana. We represent a
13 quarter million households in the State of Indiana. We worked on some
14 very significant nuclear issues over the years, mostly construction
15 issues regarding commercial power plants.
16 I want you to just consider that right now, as you talk
17 about these substances, which you want to label as below regulatory
18 concern, I just want to assure you that once the public at large begins
19 to be informed about what that means and what you're trying to act on
20 here, it will not be beneath public concern. And as the debate and the
21 public education on this issue grows, you will see what I mean. Thank
22 you.
23 LESNICK: Thank you, very much. Any other comments? Sir?
24 TREPANIER: Good afternoon. My name is Lionel Trepanier.
25 I'm with the Blue Island Greens, a local affiliate of the Green Party
U.S.A. I say with certainty that the Greens have been, are, and
continue to be opposed to nuclear power and nuclear contamination of our
environment. And I could -- based on that, I could assure you, also,
that the Greens would oppose unrestricted and restricted release of
nuclear contaminated materials.
I had a question, if that's appropriate, as to when or if

1 the comment period was extended from the June 30, '99 notice?

2 HULAHAN: The comment -- Trish Hulahan, NRC. The comment

3 period for the issues paper closes on December 22nd.

4 TREPANIER: Do you know the date that -- that notice that

5 was in the Federal Register, June 30, '99, with a cutoff date that has

6 already passed. Is that the date that was extended?

7 HULAHAN: Yes. That original date, I'm sorry, was November

8 15th, and it was extended and we published a Federal Register extending

9 it to December 22nd.

10 TREPANIER: Do you know the date of that Federal Register or

11 announcement of the extension?

12 LESNICK: No. But, you know what, when you sit down, we can

13 -- someone can get you the -- if you want the Web site, you can track

14 all the information and what announcements were made. It might be most

15 convenient for you to see everything in one place. Would that be

16 helpful?

17 TREPANIER: Thank you.

18 LESNICK: Great; thank you. Any other comments?

19 [No response.]

20 LESNICK: Okay. Before we break for lunch, Mike Mattia, you

21 had a quick --

22 MATTIA: Mike Mattia, Institute of Scrap Recycling

23 Industries. I, personally, want to thank the individuals who came here

24 to make comments, because I think they're important to hear. There was

25 two phrases, and I apologize for not remember names, but you indicated

that it doesn't sound good; it doesn't sound right. And you're right.

When we -- when the public, and even individuals like us that are close

to this thing, when you look at the concept of recycling radioactive

material, it doesn't sound right. It doesn't. And the comment of below

public concern is probably one of the best statements I've heard,

because you're right, this has got to be everybody's concern.

1 And I go back to the one comment, the one position that I
2 have trumpeted, and I promise this will be the last time you'll hear it
3 this session, and that is that there is a tremendous fear about
4 radioactivity and it's a well placed fear. There's a tremendous concern
5 about the material that is out there and what's going to happen to it.
6 And if we do not address the concerns, if we do not address the options,
7 if all of the stakeholders, be the steel industry, the recycling
8 industry, the research, the medical industry, the public at large, until
9 everybody can understand exactly what is there, exactly what is present,
10 and exactly what the options are, and everybody weighs in on what is
11 acceptable and what isn't, then we really cannot have a rulemaking,
12 Because the purpose of a rulemaking is to put in place mechanisms to
13 casee and affect that everybody needs and wants. It's like when OSHA
14 creates a rulemaking to protect the safety of workers, it's a foregone
15 conclusion that workers are getting hurt for a particular reason and
16 that those workers need to be protected and so the rulemaking, in
17 essence, creates the mechanisms to protect them.
18 In the issue of radioactive material and what's going to
19 happen to it when its usefulness has expired, we haven't addressed that
20 issue appropriately, properly, and completely, so that all of the
21 parties understand it, have gotten their arms around it, have seen it,
22 understand the options, and have weighed in on what options are
23 acceptable and what are not.
24 And I, again, urge, number one, the Commission, to consider
25 allowing the stakeholders, themselves, with your assistance and your
backing, to study the issue, to allow the stakeholders to see all of the
issues, to quantify, to obtain acceptance for alternatives. And then
once that has happened, once we don't have public fear about what may
happen, once we have industry assurance that once they will get is
acceptable to them and what will be done is acceptable, then you do a
rulemaking to make that happen.

1 And on behalf of my industry, I pledge to be the -- to start
2 whatever is necessary, and I ask anyone that's here and anyone that has
3 been at these meetings, if you agree that we need to cut through the
4 fear and through the rhetoric and get to the facts and get acceptance of
5 the facts and the alternatives before the rulemaking, to please let that
6 be known, because that support is going to be necessary for the
7 Commissioners, the folks that these folks report to, to hear loud and
8 clear the public and industry don't want a rule until we've agreed to
9 what we'll accept as part of that rule.
10 LESNICK: Thank you, Mike. I see two cards. I will take
11 those before we break for lunch. I just want to note for the gentleman,
12 I'm sorry, I don't recall your name, in the back, that was curious about
13 the extension date in the Federal Register notice, Bill Lipton was able
14 to find a photocopy, so we're able to get that to you. So, I hope you
15 have it. I think it was in the October 19th Federal Register. So,
16 thank you, very much.
17 Charles and then Peter and then we will break -- Paul, and
18 then we'll break for lunch.
19 WILK: Yes. I think Mr. Mattia -- I'd like to join with him
20 in thanking the public for coming by and giving their perspective on
21 this issue. I think it's very relevant.
22 We were talking about soil and I think Mr. - is it Crooks,
23 from DoD, was talking about remediation, different scenarios. And I
24 don't really know how the cleanups are conducted at DOD and the NRC.
25 Under the EPA, they have different cleanup scenarios, as far as
establishing the acceptable risk posed between industrial scenario and
then the residential scenario. And perhaps that leads into how the NRC
would handle restricted use of contaminated soils on a particular
property.
The regrettable part of that is that that restricted use,
under institutional controls, would be -- would rely on institutional

1 controls. So, we're talking about deed restrictions and fencing and so
2 forth.
3 LESNICK: Thanks, Charles. Peter and Paul.
4 HERNANDEZ: Peter Hernandez. The steel industry has been
5 working with the environmental community for over 10 years to promote
6 recycling, as a societal good. We appreciate the comments and the
7 support that we've received from the environmental community, as we have
8 heard it at these hearings. And we urge the Nuclear Regulatory
9 Commission to get very serious consideration to the comments you're
10 hearing from the public and the environmental groups. Thank you.
11 LESNICK: Thank you, Peter. Paul?
12 GENOA: Paul Genoa, NEI. I wanted to take just a moment to
13 follow up on Mike Mattia's comments and offer, as I believe there is
14 merit there. I believe that there is -- that we have talked past one
15 another on numerous occasions; that there -- that the packaging of this
16 issue has not been the best; that it is understandable that people have
17 concerns. It's understandable tnat some people would not accept this
18 under any conditions, particularly the way it's been portrayed.
19 But, I think there are realities that could be explored and
20 I would offer to participate in further debate, further opportunities.
21 And as I have in the past, I would offer, within reason, to try to
22 arrange for tours of facilities, so that people can get first-hand
23 experience with the kind of materials we're talking about it, the kind
24 of controls that we're already opposing, if that would help the debate
25 in any way.
LESNICK: Thank you, Paul. Okay, friends, I'd like to thank
those around the table, a good thorough discussion this morning; very
frank. People drawing upon their experience, their point of view. I'd
like to thank observers, members of the public, people that have come
and taken time out of their day to share their thoughts and their views
about this, as well.

1 Let us take one hour for lunch. Report back at 1:30 and we
2 will continue our discussion. Thank you, very much.
3 [Whereupon, at 12:26 p.m., the workshop was recessed to
4 reconvene later, this same day.]
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

AFTERNOON SESSION

[1:32 p.m.]

STINSON: Our prior discussions entered into the steel area, and then we'll talk a little bit about next steps and where NRC is going from here, all that before 3:00. Wish us luck.

Charles, and we'll give it to Mike Mattia. Go ahead, Charles.

WILK: I was asked earlier during the concrete part of our discussion about were there every any cases where people have lost market as a result of recycling material. And over lunch, I gave that some thought.

I can relate the following to you: I think Ms. Rogers is probably familiar with this, that cement kilns do recycle hazardous materials. These usually are hazardous wastes that have fuel value to them.

And so they are used as energy to drive the cement kiln or to fire the cement kiln. It has been rather controversial in different markets across the United States.

In response to "has anyone every lost market as a result of that kind of recycling activity?" there was a case where a large home building supply store or -- what do you call it -- chain, that passed a policy within their own company that they would not purchase cement that was produced from the burning of hazardous waste.

So there you have an actual account of loss of market as a result of doing some sort of recycling.

That gives you an idea of why people would be very, very sensitive to that issue. That response by that retail chain was not a response to the science of whether or not this cement contained a hazardous or toxic material; it was in response to what their purchasers or their customers wanted.

And so here you have where the public perception of an

1 endangerment posed by including these hazardous constituents in cement,
2 whether they be scientifically real or not, did cause an economic
3 hardship on certain distributors of cement.
4 We had talked about reuse of material. There is a Super Fund
5 Fund site in Salt Lake City that's called the Midvale Slag Site. The
6 EPA is busy trying to figure out a remedy for this site, and part of
7 that remedy or part of the alternatives used to look at that remedy is
8 to interest people in using the contaminated slag as a road base for the
9 interstate highway that's currently being built there, I-15.
10 And because it's a Super Fund site, there are liabilities
11 that are associated with that material that continue basically forever.
12 The Federal EPA was unable to, so far, interest the state DOT in
13 accepting this material that came from a Super Fund site into their
14 highway.
15 You might be then able to guess what the public or
16 Department of Transportation's reaction might be to someone saying, gee,
17 we have this radioactive concrete, can we put it underneath your
18 highway? It might be a very similar situation.
19 The final thing I wanted to say, in thinking a little bit
20 more about it, I think the NRC is interested in developing a list of
21 stakeholders.
22 When I talked about concrete, I was remiss, and I should
23 have talked also about the other paving material, which is known as
24 asphalt/concrete in the terminology. Obviously, there is Portland
25 cement type of pavement, and there is asphalt concrete paving.
And the asphalt people also use aggregate, and perhaps the
NRC might be interested in getting the asphalt people to recycle the
radioactive waste in their materials.
STINSON: Thank you, Charles. Tom, did you have a general
comment?
CIVIC: Yes, a general comment. I'm sorry that Kristin

1 Erickson isn't here this afternoon. But I had talked with her at the
2 break, mainly because of the information --
3 STINSON: This is Tom Civic.
4 CIVIC: Sorry, Tom Civic from AISI. The information that
5 she was presenting here at the workshop was very enlightening in terms
6 of the rigorous sampling and measurement protocols that they had
7 developed at Michigan State University.
8 She does not have all of them -- and I'm just paraphrasing
9 what she had to say, so don't quote me as this is exactly what she said
10 -- she has most of them written up, but she does not have all of them in
11 writing.
12 If she was asked to, she would prepare them and submit them
13 to the NRC for consideration. And I would recommend that that would be
14 done.
15 From what I heard so far at the sessions I have attended,
16 they sound pretty close to being best practices. So I would encourage
17 the NRC staff to contact Kristin and ask her if she would be willing to
18 submit those for the record.
19 STINSON: You bet, thanks. Okay, let's shift into trash and
20 materials for reuse, items for reuse. Again, these came up at prior --
21 these ideas came up in prior meetings. What do you do with equipment,
22 and what do you do with just general rubbish? Maybe we're talking
23 largely about fairly large licensed facilities where this would be an
24 issue, but Paul, we're just going to cut to the chase here and turn to
25 you and ask you to make some introductory remarks about what this issue
is all about.
GENOA: This is items for reuse.
STINSON: We'll, we're going to try to combine -- you may
not have been here when we started this session, but I said that we're
going to try to -- we've got to accelerate this process a little bit to
get through by 3:00. We're going to combine trash and items for reuse.

1 And that's going to make Georgio's life really difficult, but we're not
2 going to get through it otherwise.
3 GENOA: I'll go through a range of items for reuse first.
4 At a large facility, and to a lesser degree, at all the smaller
5 facilities, they may have the same kind of issues.
6 And this has to do with virtually any type of material that
7 needs to move in and out of the facility.
8 Now, at a power plant, that includes clothing, workers'
9 tools, and tools are small hand tools, as well as things like welders
10 and forklifts and cranes and trucks; pallets that materials are packaged
11 on; consumable materials such as paints, oils, lubricants, you know,
12 anything that you could find in your garage or in a shop or in an
13 industrial facility. That's the kind of thing we're talking about.
14 We're talking about compressed gas cylinders that are used,
15 you know, industrial compressed gas cylinders that are used for many
16 applications.
17 We're talking about wire, we're talking about scaffolding,
18 we're talking about containers such as Sealand containers that have
19 materials in them; boxes, drums.
20 We're talking about computers, computer terminals, video
21 screens; we're talking about video monitors that are used to observe
22 remote work activities. We're talking about hand-held radios; we're
23 talking about beepers.
24 We're talking about clipboards and notebooks; we're talking
25 about anything you can imagine in an industrial facility, that's what
we're talking about.
And what we're saying is that if those materials are clearly
radioactive, and if they can be decontaminated to become non-radioactive
at some standard of proof, then that's what should happen.
If they are contaminated and can't be decontaminated, then
they'd be disposed of as we've always talked about, as waste.

1 But the materials aren't waste if they're not contaminated.
2 They're not waste if they're still reused and reusable.
3 And most of the material can be reused and is being reused.
4 So I hate to try to make it a quantitative list, because, you know --
5 and then if you wanted to go to a university laboratory, it's a little
6 bit different.
7 It's the same thing as it would be in any nonradioactive
8 laboratory, university laboratory, only it has the radioactive
9 constituent. So petri dishes and bunsen burners and pipettes and
10 ventilation systems and bench top counters, and that sort of thing.
11 So, I mean, that's a small sampling of the kind of materials
12 that are or use. Obviously, many of those are very, very valuable in
13 their current form to be reused. A truck is still a truck when it
14 leaves. A compressed cylinder, many of these things are actually --
15 I mean, we take a compressed air cylinder in, we plug it
16 into our system. It pressurizes our fire suppression system or some
17 other safety system.
18 When it gets down to a certain level, it's changed out,
19 swapped out with a new one and taken out and taken back to the vendor to
20 be refilled and brought back.
21 Now, if it has to go into an area of the plant where there
22 is know contamination, we put a canvass bag over top of the cylinder, or
23 we wrap things in plastic. I mean, we take the appropriate steps to
24 reduce pollution, to avoid contamination, but some level, particularly
25 if we really are rigorous, some level is inevitable and has to be dealt
with.
Most of it can be managed through the same types of control
mechanisms that we've talked about. So the first level of control is,
don't let it get contaminated.
The second level of control is evaluate whether it can be
cleaned or not, and if not, isolate it from the environment.

1 If it can be cleaned, send it to a place that can clean it,
2 or do it yourself, and, finally, use whatever is appropriate to ensure
3 that there isn't residual activity that is above whatever the
4 appropriate standard is.
5 Our current standards are a legal definition that is not
6 verifiable, period. And so that yields the problem.
7 LESNICK: Frank?
8 CARDILE: I just had a question of clarification. Frank
9 Cardile, NRC.
10 Can you, in your daily practices, clearly distinguish
11 between materials that are clean that have never been -- all the ones
12 you've ticked off or read down the list of, that are clearly from clean
13 areas and are clean, have not been exposed to any radiation, and those
14 that, like you say, go into radioactive areas that you --
15 I mean, that would be your practice, you know what's coming
16 from where?
17 GENOA: The answer is yes, and all of the things that I just
18 mentioned are things that have the potential. There are also the exact
19 same kind of materials that we believe don't have the potential and we
20 don't evaluate.
21 Those include your furniture in your office complex, the
22 food in the cafeteria, the soft drink dispenser in the cafeteria.
23 People come and go from there all the time.
24 The security guards, their guns, all of that sort of thing.
25 So I really do believe there needs to be this principle of process
knowledge.
A nuclear facility is a very large facility, and only small
parts of that facility are actually engaged in operations that involve
loose radioactive material in any fashion.
So that's a clear distinction, but all of the things I
mentioned anyway still could be going into that area, and it's proving,

1 in fact, that they are clean when they come out that we have difficulty
2 with.
3 Again, when I talk about framing the issue, our sense is
4 that in most cases, this material, we believe is clean, or we are
5 surveying it to find out where it is not clean so it can be cleaned,
6 segregated, chopped up, you know, sectioned or whatever.
7 CARDILE: But before we move on maybe to talk about your
8 kinds of facilities, I have a question for you: The category that says
9 analysis needed, given the wide range of kinds of materials that you're
10 talking about, is there anything you would encourage the NRC then to
11 think about as they consider this kind of grouping of material, anything
12 different, in particular, to what's been suggested thus far?
13 GENOA: Yes. And although I believe that there should be a
14 dose-based standard as the basis for moving forward, I recognize, as was
15 pointed out, that to implement a rule, you need to have
16 concentration-based values.
17 Of course, they're going to be derived from that dose-based
18 value. But you can do detailed analysis using all assumptions, and you
19 can end up with a whole hodgepodge of numbers for every different
20 material possible.
21 And while I hate to choose the most restrictive in every
22 case, which is sometimes ludicrous but often done, I do believe that
23 looking at a distribution of values and picking a rational value that
24 everyone would implement uniformly, would aid in our evaluation of these
25 diverse materials from one facility as well as comparing the release and
verifying it to the public's satisfaction from many facilities.
CARDILE: Can I ask one other quick question? You read
through a long list of items. Where might they go? I mean, you
mentioned tools, scaffolding, computers. They don't go into the general
public domain? Where would they go?
GENOA: Sure they can. The scaffolding, depending on where

1 it is, may be reused by a nuclear power plant or a nuclear facility, or
2 it may be used, if it's free-release, by any other industrial facility.
3 When the computers come out, if they are clean, they are
4 treated as any other computer, and they go to someone's desk, and when
5 they get obsolete, they go to recycling somewhere or whatever.
6 Hand tools, if they are free-released, you know, are
7 free-released. They may be used on the nonradioactive side of the
8 plant.
9 Now, traditionally, many of these tools -- it's prudent to
10 go ahead and just set up with a paint scheme, a set of dedicated tools
11 that never comes out. Those are for work in contaminated areas.
12 But as I say, there are materials that we talk about that we
13 know are radioactive.
14 Unless they're easily cleaned, we're not going to worry
15 about those, or they're going to go to a dedicated facility to be
16 cleaned. It's all the stuff that we're not sure of.
17 How do we prove that it is clean? But, yes, I mean, that's
18 why the terminology in our industry is free-release because there are no
19 constraints on the material, once it's released.
20 And although we do dedicated surveys, we don't sit down and
21 develop a documentation package associated with every wrench that comes
22 out of a facility. That's just not the way it's done.
23 CARDILE: Thanks, Paul.
24 LESNICK: Can we move on to Kristin to talk about you type
25 of facility in a university research kind of facility and what your
experiences are, both with items for reuse as well as trash, rubbish?
ERICKSON: This is the biggest bulk of our problem, or our
volume, I should say, in medical and academic institutions.
We have both reuse all the time. In fact, that's the very
nature of our work, and this is something that may not be so
straightforward to some people, but I have a laboratory, I've got a lot

1 of people working with loose radiation there.

2 And every day they have to control it at the source. Okay,
3 let's say they have some contamination on their absorbent lab paper,
4 they have to survey after every use. If it's contaminated, they have to
5 clean it up.

6 And so every single day in every way, we are sort of
7 free-releasing. And the way we do it is under our license and with the
8 regulatory guidance.

9 We have a limit of 200 dpm for high-risk betas and gammas;
10 2,000 dpm for low-risk betas and gammas. They all have to have their
11 own geiger counters. We require before they're approved to use it in
12 their lab.

13 We calibrate those geiger counters with NIST-traceable
14 sources, so we know they work. If they don't work, we decommission them
15 and they have to get another instrument, or they can't use this until
16 they do have an instrument.

17 So this is common every day. Survey, release, reuse. And
18 whether it's a big piece of equipment or their little pipetter or the
19 bench top; it's all the same ball game.

20 Now, as far as waste is concerned, we have primarily
21 paper/plastic gloves, but it's also glass and all kinds of things, you
22 know, the lab glassware, the pipetters, and the little stock bottles and
23 all of those sorts of things that you can commonly see.

24 But that's not the only categories. So here, I would like
25 to add and share with you some of our way of managing it, because we
have a good waste program that works, it's cheap, and it's extremely
safe, and extremely compliant.

We have categorized our rad waste into two primary
categories, of course: Solids and liquids. And then within that, we
have regular radioactive liquid and a regular radioactive solid, so
that's the primary liquid waste that I generate from my research or the

1 solid waste paper/plastic gloves.

2 And then we have a category called other solids, that's
3 stock bottles, a sealed source such as a Nickel-63 electron capture
4 device sealed source.

5 Or there are some of the other unusual solids you might run
6 into like a piece of contaminated lead that they can't use, obviously.

7 The other liquid category is the same kind of thing. We
8 have an Other category for liquids, very specialized, very concentrated
9 stock bottles, those sorts of things.

10 We don't want them dumping it in with our big carboys
11 because that's higher concentration, higher activity. Also, we have to,
12 all the way through this -- our worst and most challenging problem that
13 we spend time on is the mixed waste issue.

14 If I have a tiny bit of methanol on my liquid waste, I am
15 now RCRA. And with my stock bottle, I mentioned the C-14 cyanide in an
16 ampule. That's being kept right now until we decide how we can get rid
17 of that.

18 These things cost a tremendous amount of money.

19 Then we have another category of scintillation vials, which
20 is flammable, counting cocktails, toluene-based, so it is a RCRA
21 hazardous chemical because it's flammable, and it has very, very low
22 amounts of tritium and Carbo-14.

23 There is a deregulating category and that's another way of
24 releasing that we have. Less than .05 microcuries per gram or
25 milliliter is able to be released for vials and for animals or tissue or
bedding.

So then that leads to the animals or tissue. Now, that
category, we don't have so terribly many actual animals in our waste,
because that's not the state-of-the-art anymore. It's typically cell
culture, molecules, DNA that we're looking at, more than whole animals
anymore.

1 So there isn't so much of the whole animal, although there
2 are a few mice and rats. And then there is a lot of the cell culture
3 types of things. We have to worry about blood-borne pathogens
4 applications and their uses, because they're using sometimes serum, body
5 fluids. It depends on the research.
6 So we have a broad spectrum of regulations and risks in this
7 waste and in these uses. It's an everyday thing.
8 This waste stream -- we categorized five waste streams for
9 the users because that's easy for them. Then we take it and we break it
10 down further, and then we have like many, many, probably 50 or 60 or 70
11 different ways you could manage our waste.
12 The free-release part or the unrestricted release limit that
13 I suggest is something similar to what you have for air and water. That
14 would be very useful in many respects in our institution. And I guess
15 this is a good place to read to you the impacts on a institution like
16 ours.
17 Certainly there is solid waste. Secondly, there is
18 decommissioning of use areas. Decommissioning is going to be a big
19 issue for us in the next couple of years, because we have four buildings
20 whose ventilation systems are totally trashed, ancient, need to be
21 replaced.
22 Those ventilation systems from the fume hood all the way up
23 through the roof and the ducts, the blades, the fans, all of that will
24 have to be surveyed for release. And most of them are not going to be
25 anything, because they were small amounts, short half-life, and we know
it's not there.
We measure. But if it's tritium or Carbon-14, long
half-life, then we have a number that we have to worry about. How am I
going to do that? That's going to be a big problem for us.
Mixed waste issue: If I had to have a limit beneath which I
don't consider it radioactive and can treat it as hazardous chemical

1 waste, I eliminate a lot of expense and a lot of problems for something
2 that is essentially no risk -- less than our fly ash risk by a long
3 shot.
4 Our incineration and our ash monitoring: We use the MPCs
5 and we control with MPC out the stack, and, in fact, take ten percent of
6 the MPCs to control that. It's the same with the ash. Any detectable
7 radiation in the ash, we are going down to 10 to the minus eight, tenth
8 microcuries per gram numbers to monitor this, which is very, very low.
9 Routine surveillance: Like I talk about in the
10 laboratories, our laboratories, if we're inspecting a lab for
11 contamination and we say we found it and we tell them they have to clean
12 it up, is it cleaned up? What's the number?
13 Security: Lab security is a huge problem, and you in NRC
14 know how much we struggle with that. We are required to secure all
15 radioactive materials. We're a public institution and it is not
16 restricted. We don't have cards, we don't have only rad workers, we
17 have everybody coming in and out -- students, staff, faculty, visitors,
18 in these research labs.
19 Yet we're required to secure these radioactive materials,
20 and we should for anything that has any significant amount or any
21 significant risk. But here's the question that came up with one
22 inspector.
23 We laughed about it because I said this is my ridiculous
24 scenario, and what do you think? If I have a tiny benchtop centrifuge
25 and there's 10 dpm of P-32 inside the motor of that centrifuge and
nobody is in the room, is that a security violation? They said, yes,
even if that's the only radiation in the room. You see the problems we
face.
Medical and veterinary uses: We have nuclear medicine for
animals, and now for humans, there is a nice program with nice limits,
and it's all well done and everybody pretty well knows what they're

1 doing, but not for animals.

2 They don't have regs for animals, and so we had to bring it

3 in under our broad license. When can we release the horse after they've

4 had a nuc med scan, or the cat?

5 In one case, we even did a bunch of ducks, because the

6 research was what toxicity in the ducks are from the buckshot. It was

7 interesting, and they all got away, too. It was funny.

8 Sound science problems here: I have a real problem talking

9 to our researchers who are very educated, knowledgeable people about

10 some of these issues. When I come and give them these silly mixed

11 messages, it sounds like I've got a forked tongue.

12 Well, this is safe, we know it's all safe, yes, you can have

13 this, we know you've got a good record. But now you're in trouble

14 because you've got this contamination, all because of this or that.

15 The risks are not equated with the management. Small

16 licensees have trouble with this, so that's another issue. I get a lot

17 of working with people with small licenses who don't know what to do

18 with their stuff.

19 Public perception of the mixed messages comes into play and

20 we get a lot of that. Sensible ALARA is another impact.

21 Permits and licenses: How we write our licenses, what our

22 permits are, all of these things are impacted when we write a license

23 that says we will survey, too, we will not release unless, our waste is

24 managed thus and so, a cleanup of a spill is thus and so, that's a big

25 picture thing, too.

Finally, there are the environmental programs and

operations.

I can probably make this list bigger, but you can see the

broad impact it would have for all of us.

As I interacted with the academic and medical radiation

safety officer group by an e-mail list, we were all struggling really

1 hard with this. Should it be a dose-based limit? Should it be a
2 concentration and what should we do with it?
3 LESNICK: Kristin, thank you. I say this to you but also to
4 everyone: I hope people will consider, having had the benefit of the
5 workshops, to do some reflecting about what got discussed here, and
6 things you might want to write down, either to clarify points, to put
7 down in writing, things you shared verbally, or further reflections you
8 have, based on the conversations. Please take advantage of that.
9 Do we have any other comments around the table regarding
10 items for reuse, or trash, or any questions from NRC staff that you'd
11 like to pose for the table about this particular set of topics?
12 Paul?
13 GENOA: Paul Genoa, NEI. I just wanted to add the trash
14 component because I sort of stopped at the reuse component. I mean, for
15 good waste management practices, we try to reduce the amount of
16 materials that are sent to a low-level waste disposal site.
17 I mean, there are clear economic advantages and there are
18 also societal advantages because those resources are very limited.
19 And there is waste material that is generated within the
20 power plants, some of we know is radioactive and we know where it's
21 going. It's going to get processed and disposed of.
22 But there is a vast majority of material which we call green
23 is clean. There is a program that most of utilities use where they
24 essentially put within the radiation control area, not within
25 contaminated areas, they put special containers that are specially
marked.
They train the workers, and the workers have the
responsibility to make the determination, do I think this piece of
paper, this piece of wood, this piece of plastic is clean?
If they believe so, then they put it in the green drum. If
they don't think so, they put in another drum that's designated for

1 waste.

2 Most of the utilities will go ahead and collect that

3 material and then send it to a facility that is dedicated to review and

4 survey and release. And they apply their limits and their license to do

5 so. And we've all talked about what those conditions are.

6 And that material, the vast majority of that material does

7 go out as just industrial trash to an industrial landfill. Some small

8 amount of it, if it does trigger an alarm, gets disposed of as

9 radioactive waste.

10 I will try to get you numbers on the annual generation, but

11 it's fairly significant. You can imagine that any large industrial

12 facility has a fair amount of that kind of trash material that would be

13 generated.

14 And it's material like the computer printouts from the

15 computer in the chemistry lab that's doing the effluent release work and

16 so forth. You know how much computer paper we all use. We all know

17 that. You know how big it can be.

18 CARDILE: Can I ask a question of clarification? So some of

19 that material like the computer printout paper, is not likely to be

20 radioactive or have been in a position where it could have been

21 contaminated.

22 This is Frank Cardile, NRC.

23 Where it could have become radioactive -- and so that type

24 of material, I guess, is fairly readily sent to industrial trash sites,

25 or industrial landfill site. But I guess my question is, is there trash

type material that has a potential for being radioactive, and what

levels do you clean that to before you would -- or monitor that to

before you could send it to an industrial landfill, before they would

take it?

GENOA: Paul Genoa, NEI. The material that I just described

in the Green is Clean Program is material that has a remote potential of

1 being contaminated because it's within the radiation controlled area, or
2 in areas where we know radiation has -- well, within the radiation
3 controlled area.
4 So there is a potential, but our experience leads us to
5 believe that the people have handled the material properly, and that it
6 is clean, but we're going to survey it, and we're going to prove that
7 it's clean.
8 Again, it's the same technology we've talked about before.
9 If you're doing it yourself, you know, you're applying a surface
10 activity using, you know, frisking technology set to at least the Reg
11 Guide 1.86 values and upon seeing no activity, the material can be
12 released.
13 If it's bulk material, your guidance goes on to say you must
14 then pass an aggregate survey with a micro-R meter or something like
15 that, so it's a two-step process on an aggregate.
16 But the bulk of the industry doesn't waste time doing that.
17 We send it all to a dedicated facility, and that facility has a license
18 condition. There are several of them and they vary a little bit.
19 Some have actual numerical values, some have non-detect
20 under certain monitoring criteria, and in some cases, they do apply the
21 fingerprinting I mentioned before to ratio, hard-to-detect isotopes, to
22 the others, and adjust their release limits based on that.
23 For trash coming from an office building that is outside the
24 RCA, we don't monitor it at all.
25 LESNICK: Paul, I assume, if staff have further questions,
you might be accessible to them?
GENOA: They know where I live.
LESNICK: I figured that. Susan, we're going to get your
comment and observations on this, and then move on to lead, nickel, and
steel.
LANDAHL: Susan Landahl, ComEd. Just to put it in

1 perspective, I do have some numbers on volumes.

2 LESNICK: Great.

3 LANDAHL: They're not exactly what you're asking for, Paul,

4 but on average, anywhere from 100,000 to 200,000 pounds per year per

5 reactor are the kind of numbers that we're talking about just going into

6 the dry active waste stream.

7 And some percentage of that is definitely clean, but either

8 because it's been mixed with something else or the economics of trying

9 to prove that it's clean is such that we don't take the time to do it.

10 I don't have -- our educated guess is something like less

11 than 20 percent of that falls into that category. But we're talking a

12 tremendous amount of pounds of stuff, and that's my only reason for

13 bringing it up. Thanks.

14 LESNICK: Thank you.

15 GENOA: I guess I'm wondering if on lead, nickel, and steel,

16 should we do them separately to see what things might be different?

17 What do you think?

18 LESNICK: Together. Any advice around the table for those

19 of you who are familiar? Should we take lead, nickel, and steel

20 separately from each other, or as a group and ask you to clarify as we

21 go along? Any advice on this?

22 Let's start with lead, okay? Let's start with any comments

23 about lead. Is that all right?

24 Paul, do you have any comments about lead? Judd?

25 GENOA: Paul Genoa, NEI. Kristin alluded to lead. I think

lead, unlike aluminum, where we think it's out there in lots of places,

it's in small amounts.

Lead is used routinely, because of its shielding properties,

in the nuclear industry.

Lead is used not only in fixed facilities within the design

of a facility as permanent shielding, it's used in sheets or bricks or

1 shot, or in a wool form like a steel wool, a lead wool.

2 The lead wool -- and so the permanent facilities tend to be

3 sheets or bricks, or melted solids into a certain configuration, a

4 shielded drum, for instance.

5 Generally, those are -- the sheets and bricks are just

6 stacked as they are in some configuration. They're manufactured for

7 that purpose in different interlocking configurations.

8 If it's a fabricated shield for a certain utility, it

9 actually is probably poured into a stainless steel container of some

10 kind. So in that case, its' likely protected from contamination.

11 There is also temporary shielding used. There are racks,

12 commercial racks that are used that you can wheel into an area and you

13 can hang blankets that are made up of this lead wool inside of a PVC

14 plastic cover that's sewn around it with eyelets so that you can strap

15 them onto a piece of equipment or hang them from a rack to shield

16 workers from those sources.

17 Those clearly can be decontaminated by simply removing the

18 external package and taking the wool out and using them. In most cases,

19 that is done.

20 But when it comes time -- there is also lead used in

21 shielding for packages. There is lead shot used in certain

22 applications.

23 And I don't have good numbers, but there is a lot of lead in

24 facilities. The bulk of that lead is going to come out when you

25 decommission the facility or you change your configuration within a

room.

The lead adds problems, of course, because lead is a

hazardous material under RCRA.

So lead can be cleaned very easily. There are approaches to

clean lead. Electropolishing is a good way. It's sort of the reverse

of electroplating, and it just sort of strips everything out and it's

1 clean.

2 But you then end up with a mixed waste stream from that

3 process. So there are some difficulties in dealing with the material.

4 But lead has value, commercial value. It is a useful

5 product, obviously, and there is a lot of it that is probably clean. I

6 guess that's --

7 LESNICK: Before we turn to Bill, since I'm assuming you're

8 going to have some similar comments, potentially, here, why don't you

9 keep the mike for a second about anything you'd say then about your

10 suggested alternatives for how to address lead?

11 GENOA: Personally, I don't see a differentiation between

12 handling a lead brick, a piece of copper, a piece of steel, a piece of

13 aluminum, or anything else.

14 LESNICK: Bill?

15 LIPTON: Bill Lipton, Detroit Edison. We generally avoid

16 using lead in the form where it can become contaminated. As Paul

17 mentioned, we only use lead that's securely wrapped. Then it's just a

18 matter of when we no longer need the lead -- generally, it's stored for

19 reuse, we don't or very rarely generate lead waste, but it's just a

20 matter of removing the wrapping.

21 I think that's the best approach to take. It's probably

22 different in medical facilities where they have to use more sheet lead,

23 but I think the way lead is generally used, it can be used in a way that

24 it doesn't become contaminated. And I think that's probably the best

25 approach, preventing the contaminated waste generation in the first

place.

LESNICK: Thank you. Let me sneak Mike Mattia in here.

MATTIA: For the recycling industry, the lead brings up an interesting issue of storage. Generally in recycling, most of the materials, you don't stockpile them. You bring ferrous in, you want to get it out within a few days of processing. And that applies oftentimes

1 to a great deal of the metals.

2 Some of the nonferrous metals such as copper that we talked

3 about this morning, you'll bring in and hold for a short period of time

4 until you've accumulated it to an amount that you want to ship out.

5 Lead is one of those interesting things where there aren't

6 as many lead smelters in the U.S. as there are steel mills or as there

7 are copper smelters. So, you will hold onto the lead for longer periods

8 of time.

9 You'll bring it in and hold on to it until you have

10 accumulated it to the point where it's justifiable to ship maybe a

11 truckload or a good amount to someone.

12 And you will accumulate it slowly, because it's not

13 something that finds its way on a daily basis to the scrap yard.

14 That brings up a problem in that if you have contamination,

15 even a low, low level, we're talking about this material being in a

16 warehouse where people are working constantly, for long periods of time

17 while it's waiting to be accumulated and shipped out.

18 So, lead that would have low level contamination would be a

19 concern, because it's going to be there for awhile. Whereas, for

20 example, if copper were to come in, it would probably move out within

21 days; ferrous, within hours, but lead might be around while you're

22 slowly letting it pile up.

23 CARDILE: As a point of clarification, I can't speak for

24 NUREG 1640, but I know NUREG 1640 did not address lead. If we were to

25 extend the analysis of 1640 to lead, I would presume that his

contractors would work with the industries who handle this material, and

follow what you just said about how the material stays at the site

there.

Presumably, potentially, this group of workers would become

perhaps a critical group, and so any dose limit that we use would

protect -- if they were the limiting case or the critical group, it

1 would protect them.

2 So it's not like this would be something we would not have

3 to consider.

4 MATTIA: If I may just extend that concept, again, when you

5 look in the recycling industry, the ferrous materials are generally

6 outside because they're big and they're bulky, and the machinery that

7 needs to operate them are big and bulky.

8 The nonferrous materials are generally inside, and would

9 generally be inside the warehouse. And in many cases, not just with

10 lead, but the nonferrous materials, the copper, the brass, the lead, and

11 in some cases, some smaller types of aluminum, definitely the nickels,

12 that would come into a scrap facility, would be inside a warehouse where

13 people are working constantly, and they would be held there for anywhere

14 from days to months, waiting for the right market or the right

15 accumulation.

16 So whereas ferrous, I would say a ton of ferrous that comes

17 in on Monday, at some point is going to be gone that week.

18 The nonferrous could come in and be there for weeks, and

19 even months, waiting for the right buyer, the right market.

20 LESNICK: I mean, that's the point you just made.

21 MATTIA: yes, but it doesn't apply -- I want to make sure

22 that it doesn't just apply to lead, although that is something that

23 would stick around the longest. The others will be there for periods of

24 time as well.

25 LESNICK: I'm sorry, Mike. Thanks for clarifying that.

All right, let's keep moving quickly through lead. I want

to make sure we have time to talk about nickel, and finish whatever else

we have to do on steel, as well, and then we've got some wrapup. We've

got to be finished by 3:00, so Kristin, some comments?

ERICKSON: Yes. For us, lead is an everyday business, lots

of it. I wouldn't say it's a huge, huge volume, but it certainly adds

1 up, because every single shipment that comes in, most of those are in a
2 little lead container of some sort, and we get about 3,000 shipments a
3 year.
4 The University of Michigan, our sister institution in
5 Michigan, is even bigger. I think they're more on the order of 6-8,000
6 shipments a year.
7 So you think of how many little lead pigs that is. And then
8 you look at the number of lead bricks, and then you look at a bigger
9 facility like the cyclotron with the shielding in it, or the old
10 scintillation counter. When you take that apart, there's lead in there.
11 Not to speak of our -- we can -- orphaned, inherited lead
12 things that we have. It would be nice to be able to prevent
13 contamination by wrapping everything, but they don't ship them to us
14 that way, unfortunately.
15 Most of the lead is not contaminated, but there is a lot of
16 effort and time put into surveying, and most of the time there are short
17 half-life, so not a problem, typically.
18 But we do have some that is long half-life, high gamma, and
19 we are stuck with that, basically.
20 The other big point about lead that I haven't heard
21 mentioned yet that we need to keep in mind is even more of a problem.
22 It's not the radiation. Lead itself is a hazardous chemical.
23 Now, you've got lead sitting around your facility, it's
24 oxidizing and you've got lead oxide in the air and people are breathing
25 it, and that is not a good thing. What have they done with the
lead-based paints? Well, you need to look at that if you're storing big
piles of lead anywhere.
Is it going into the air? We have had the cyclotron as the
worst pack rat of the whole facility. We've got so many tons of lead
bricks over there, you just couldn't even believe it.
And they're ancient, powdery. And so those are more of a

1 risk to worry about than the radiation.

2 I think you don't need to worry about the rads here, but

3 that chemical risk is a whole different thing.

4 LESNICK: Thanks, Kristin. Tony, and then we'll come over

5 to Robb.

6 LAMASTRA: Tony Lamastra. To follow up on what Mike was

7 saying, with things like lead and copper, not only are they inside, but

8 they tend to come in in relatively small quantities. So you might have

9 a pickup truck load, and it's going to be off-loaded by hand as opposed

10 to iron and steel which will be handled in much larger quantities.

11 And that tends to be typical for most of the nonferrous,

12 other than aluminum, maybe.

13 LESNICK: Thank you. Robb, then we'll come back to this

14 side of the room and maybe finish up on the lead, I think.

15 LEIB: Robb Leib, First Energy. I have just a thought on

16 lead. My experience in aggregate areas, rooms filled with items that

17 have been controlled to levels below current release levels if there's

18 no increase in background.

19 Secondly, lead would offer the additional benefit of

20 providing self-shielding. A pile of lead will certainly not be a dose

21 concern from small amounts of material that might be on the inside.

22 And third, I just want to reiterate, yes, the overriding

23 concern at our location is the handling and ingestion of the lead

24 material itself, rather than the radiation.

25 LESNICK: Thanks, Robb. Paul, you wanted to make a point?

GENOA: Yes, actually very briefly, and it was to kind of

follow up on this last theme. The real difficulty with lead is lead

disposal. As I said, lead is a valuable product that has to be used

carefully.

But lead that is wasted and is no longer useful is a

detriment to the environment, and it's significant.

1 And so avoiding disposal of the lead is a good thing. And I
2 also wanted to point out that although there are ways to encapsulate it,
3 and do all that, it's still a challenge.
4 But lead is unique, also, as I mentioned, because of its
5 radiological properties. The nuclear power plants across the country
6 have generated about 70,000 metric tons of spent fuel and will generate
7 almost a like amount over the life of their facilities.
8 All of that fuel will need to go into specially-designed
9 packages, ultimately for disposal. We're currently looking at Yucca
10 Mountain as a possible source.
11 Some of the designs for those disposal containers and also
12 the transport containers include some lead or depleted uranium. Now,
13 the Department of Energy is responsible for that activity, and actually
14 has a lot of depleted uranium, so it might be able to make it available.
15 However, we haven't progressed very far in that. My only
16 point is that there may be some direct within the industry recycling
17 potential of that material for a useful purpose, which is the ultimate
18 disposal of the fuel in appropriate packaging.
19 But there is a lot of work that needs to be done on
20 approving the design of the packages. Right now, it's not going to be a
21 government design; it's the private sector, but if that material was
22 available as a resource and made available essentially for free, I think
23 the free market would figure out how to impose its use in those packages
24 to the betterment of society.
25 LESNICK: Thanks, Paul. Can we move on to nickel? Is that
all right?
Comments or information you'd like to share about nickel?
Mike Mattia?
MATTIA: Very briefly -- and I had mentioned this earlier,
that nickel is probably one of the precious metals of recycling. There
are very few in the world, nickel refineries, and the scrapping of

1 nickel is a very, very valuable commodity.

2 We have talked about a couple of dollars per pound for

3 things like copper, which was really great, and the scrap value of

4 nickel can be in the tens and hundreds of dollars per pound. It depends

5 on the market and it depends on the purity of the nickel.

6 It's a very, very valuable substance because it's in high

7 demand for a lot of specialty metals, and because, as I understand it,

8 there isn't a great many mines and refineries that refine new nickel.

9 There are a few of them. It's not as well mined and as plentiful a

10 natural resource as many of our other metals.

11 So it's a very, very valuable commodity, one that is in high

12 demand in the recycling industry, has a lot of specialty applications

13 for very expensive equipment.

14 So it's a very highly sought after, highly marketed piece of

15 scrap commodity. And like with the others, it's stockpiled inside, it's

16 handled by hand. And it will be gathered until there is a sufficient

17 quantity or sufficient market force to say now is the time to deliver

18 it. So it will also accumulate.

19 LESNICK: Question, Trish?

20 HOLAHAN: Trish Holahan, NRC. You mentioned earlier with

21 copper that it was the processing of that that was simpler than with

22 steel. Is that also the same with nickel?

23 MATTIA: Yes. In a scrap recycling facility, ferrous and

24 those types of metals, there's a lot that has to be done. You know,

25 ferrous material will come in the shape of a car or an automobile,

something that you have other materials there. You can't ship a car to

a steel mill. You have to tear the steel apart, you have to put it into

certain types of packages or bundles or shred it.

Most of the time, like if copper were to come in and you

were to get copper windings or copper motors, they'll go in a box

because that's how they'll go to the refinery because there's a refinery

1 that can melt them that way.

2 If you get nickel in, it will be graded as to what kind of

3 nickel, and it goes in the box until I find a buyer for that kind of

4 nickel or that kind of lead.

5 So the amount of processing that you actually do is nothing

6 more than sorting, grading, weighing it, and putting it off waiting for

7 it to be shipped.

8 LESNICK: Thank you, thanks for clarifying that. Let's take

9 the cards over here on the left first. Jud?

10 LILLY: This is Judson Lilly with the Department of Energy.

11 I don't think I could have avoided speaking about nickel.

12 One of the most notable aspects of a large decommissioning

13 project we have in Tennessee is the removal of 6,000 tons of nickel from

14 the gaseous diffusion plants. And the nickel in those plants is in the

15 form of thin tubes about the size of your finger.

16 There are several thousand large vessels and each vessel

17 contains several thousand of these nickel tubes. Our decommissioning

18 project is to take the equipment out of those buildings.

19 We pull the nickel tubes out of the vessels. We pretreat

20 them, and then they're shredded, and then they are sent to an MSC -- I

21 guess it's licensed by the state of Tennessee, an agreement state.

22 At that point, at the MSC facility, they are melted. After

23 they have been -- they are classified, classified nonproliferation

24 technology, both in terms of the shape of the tubes, the dimensions of

25 the tubes, and some of the chemical components that are with the tubes

--

When they arrive at the NRC licensed facility, they are melted. At the point they are melted, the classification issue is resolved, so at that point forward, it can be treated as nickel.

The primary contaminants of the nickel tubes, the most difficult one is Technetium-99. The gaseous diffusion plants took fuel

1 that had been used at Savannah River and Hanford, Washington, and that
2 fuel introduced Technetium into the gaseous diffusion plant system.
3 And that is the most difficult radionuclide to remove from
4 the nickel. The process that we have for that, we will be melting the
5 nickel, then we will be dissolving it into an electrolytic solution.
6 There is a filter within the electrolytic bath, and then the
7 nickel will be plated out. So what we will wind up with is a nickel
8 cathode from the electroplating process.
9 The technetium will be held up within the electrolytic
10 solution, and will be pulled out in the filter media on a regular basis.
11 The license that the state of Tennessee granted on this
12 specific proposal is three Becqurels per gram of Technetium-99 with no
13 ingot, no single ingot having any concentration above 6 Becqurels per
14 gram.
15 For uranium, it's .3 Becqurels per gram with no single ingot
16 having greater than .3 and no greater than .6 of concentration of
17 uranium in the nickel ingot.
18 That's the process that we have for this. I'm trying to
19 think if there are any other issues I need to refer to that?
20 The doses that have been calculated for that proposal are
21 .0017 millirem as the maximum dose that would be resulting from that.
22 The State of Tennessee was the -- the requirements that the Department
23 put upon the project were that the contractor needed to find -- needed
24 to receive a license to proceed with this and have an authorized limit.
25 They did work with the State of Tennessee, and the State of
Tennessee licensed the process, and at that point, the Department was
willing to go ahead with the project.
We are overseeing the radiological control program, but it
is really the responsible -- we are not stepping in and taking over the
turf of the State of Tennessee; they are the regulator of record, and we
are there as a technical resource as well.

1 LILLY: 6,000 tons from this particular project. The
2 problem, the thing that has received a lot of notoriety is this is a
3 volumetric release. The nickel in the plants is centered, so it is
4 effectively a sponge. And you're pumping gas through the sponge, and
5 that gives you effectively volumetric contamination. When you melt it,
6 you certainly have volumetric contamination.
7 We spent a lot of time and a lot of care to make sure we
8 have an effective decontamination technology. By way of an overview,
9 that's how that project is being handled and how it's being treated.
10 LESNICK: Thank you very much, Jud.
11 CARDILE: Can I ask a quick question?
12 LESNICK: Yes sir. Frank.
13 CARDILE: Frank Cardile, NRC. I just wanted to ask a quick
14 clarifying question. The calculation, the calculated dose from the
15 pathways, I guess, that you did was .0017 millirem per years.
16 LILLY: This is Judson Lilly, U.S. DOE. Yes. That's the
17 maximum, the maximum dose. The controlling scenario for that was hip
18 implant that would be in, in place for twenty years. The second most
19 limiting case was a, a set of braces, and those would be in place, the
20 assumption was, for three years.
21 Now the, the true use of most nickel is not an, in personal
22 care products. Our intention would be that the majority of the material
23 would be used in an industrial application, but that, the program
24 doesn't have anything in place to guarantee that. So for being
25 conservative, we assumed the most direct use for the product. So that
is our limiting scenario, our limiting case.
LESNICK: Thank you.
LILLY: One aspect that was noted in the analysis was that
the, the x-ray doses that would be taken for either the hip implant or
the, or the orthodontic procedure would be several thousand times the
dose from the x-rays than you would have from the actual use of the

1 nickel in the devices. LESNICK: Thanks, Jud.

2 CARDILE: Can I ask one other quick question?

3 LESNICK: Yeah, quickly because I want to make sure --

4 CARDILE: Frank Cardile, NRC. If I could just -- I assume

5 that you also looked at, as NUREG 1640 did, the scrap worker, the, in

6 the pathway analysis. I mean, the people who process the material are

7 also in this analysis? I mean --

8 LILLY: Yes.

9 CARDILE: -- 1640's analysis showed that the scrap worker

10 was bigger than the end user.

11 LILLY: No, my understanding was that the, that the worker

12 analysis was not, was not specifically spelled out in the license

13 application. Now, our Office of Environmental Safety and Health noted

14 that, I believe. I believe you all have looked at that as well. That

15 case may be, may be a more limiting, may be a higher case, but it is

16 certainly well below any -- you know, when the levels are so low that,

17 that even if you were off by several orders of magnitude, you'd still be

18 well below any standards that have been contemplated.

19 I believe the IAEA and the European Union have standards for

20 technetium that are 1,000 beckerels per gram and 300 beckerals per gram.

21 CARDILE: Thank you. I appreciate it.

22 LESNICK: Let me take the last two comments about nickel

23 because I want to have, make sure we've covered steel appropriately and

24 we still have wrap-up to do, and we will finish by three. So, with

25 vigor.

SZWED: Okay. Dan Szwed for MIRC. Just to reiterate some of Mike's comments about the value of nickel -- I guess I'm questioning how it gets to a hundred dollars per pound. I'm not that familiar with the, the costs. I'm more familiar with single dollars per pound. But nickel, nonetheless, is a valuable material, particularly to the stainless steel industry. It's a key alloying element. It's what makes

1 our product applicable in many of the uses, many consumer uses. And
2 therefore, the quality of nickel -- to use the term -- perfect. I mean,
3 we can't accept anything less.
4 LESNICK: Thank you. Mike, last comment on nickel?
5 MATTIA: Just a quick question of Judson is, given all
6 security issues, considered how much of this refining, decontamination
7 process would be observable.
8 LESNICK: If you could be brief in the answer, Judson, I'd
9 appreciated.
10 LILLY: Yeah. This is Judson Lilly again, with the
11 Department of Energy. Once the nickel is melted, there are no security
12 restrictions. It would be -- the only restrictions you would have would
13 be on the radiation, operation aspects. That's why yesterday -- the
14 classification issues of nickel will be resolved before you get into a
15 clearance situation. So the clearance issues are not going to cloud or
16 make the, the release of this a problem.
17 LESNICK: Thank you. Let's move on to steel. Now, I guess
18 --
19 CARDILE: Can I ask one quick question? This is Frank
20 Cardile of the NRC. I, I assume -- and I wanted to ask two quick
21 questions. One is, Paul, is there any -- I guess I'm showing my
22 ignorance -- in the nuclear and NRC license industry is there any nickel
23 material? And the second question is, I would assume that the same
24 concerns about dose levels, you know, the doses and receiving any of the
25 nickel with radioactive contamination, would hold amongst the scrap
people and the steel people that the same concerns would be there, as
are there for the steel?
LESNICK: And if you could be succinct.
GENOA: Paul Genoa, NEI. Briefly, I don't know if
substantial quantities of virgin nickel. It's used in, for plating out
sources. It's used in radiolytic chemistry -- usually not by our people

1 but by labs. Clearly it's a component of stainless, and we have huge
2 amounts of stainless. But our stainless, generally because of the
3 systems, is used for highly radioactive fluids, and generally is not
4 applicable for clearance.
5 That doesn't mean that smart people in the future won't
6 learn how to decontaminate stainless; it is being done today and it can
7 be done in the future. But I'm not sure if that really is related to
8 pure nickel. That's more a stainless steel recycle question.
9 LESNICK: Okay.
10 CARDILE: I guess my question to Mike was, for the same
11 concerns or reasons that the scrap and steel industry would be concerned
12 about having steel coming in, it would also be concerned about having
13 nickel coming in, despite the higher value.
14 MATTIA: Oh, absolutely.
15 CARDILE: Okay.
16 MATTIA: There's no question, especially because -- and
17 it's not even just especially. As was mentioned, you take a substance
18 like nickel as the other non-ferrous, there's more handling being done
19 by the worker in the scrap yard than is being done with the ferrous. So
20 there's even, I would say, more concern. And it sticks around near the
21 worker a lot longer than the ferrous does.
22 LESNICK: All right, let's move on. Let me make a
23 suggestion --
24 LILLY: I'd like to include one remark. With -- this is
25 Judson Lilly again, with the Department of Energy. I understand what
the, what the position, the policy position of the Associations both for
scrap metal and ESRI are. The metals that we're having coming out of
our project are generally, generally being dealt with through brokers.
And in point of fact, we have -- the pedigree of our, of our materials
coming out is very well known. The quality of our materials is very
well known. And we've not had a problem or reluctance on the part of

1 individual firms to purchase that. It's very clear what it is, where it
2 came from, what it looks like when they get it. So that, that has not
3 been an issue with specific companies who would be in the market for
4 this material.
5 LESNICK: Let's move on to steel. And I think -- let me
6 make a suggestion here, that, you know, we've had good conversation
7 about steel, and I think an evolving understanding also, over the four
8 workshops. But I don't want to assume that we've heard everything that
9 we need to hear or that some of the subtleties -- you know, we've gotten
10 everything.
11 So I guess I would like to ask people around the table to
12 have a fairly high threshold here -- things that you think are
13 particularly unique or special that should be emphasized about steel
14 and/or things you think that really haven't been said yet that need to
15 be clarified, given the kind of schema we are working with. That way,
16 we don't have to probably replow old ground, so to speak. And let's
17 keep, keep the bar pretty high.
18 Pete Hernandez.
19 HERNANDEZ: I was going to -- Peter Hernandez. I was going
20 to suggest that we go through the process for steel with Paul,
21 explaining its applications. And I need to address a number of
22 questions that were posed earlier to us by a number of representatives
23 here. This may be part of the discussion, but I believe Paul should
24 proceed.
25 LESNICK: That's agreeable I think, right? Maybe quickly,
Paul and others, just ways things are being used and current practices
being cleared, and then your suggestion of, of alternatives.
MATTIA: I just [OFF MIKE]
[LAUGHTER]
LESNICK: Anything you want -- as with other materials, let
me -- since it is, it's late and it's the fourth --

1 [APPLAUSE]

2 LESNICK: Did you forget that you use steel?

3 MATTIA: No, that's right. I do.

4 [LAUGHTER]

5 LESNICK: Paul Genoa, NEI. Mars landing.

6 The question Paul is -- looking at this schema, when we've
7 kicked off each area, it's been helpful to hear from the main users.
8 How do you use this? What are current practices? How are you clearing
9 now? And your preferred alternative, if you will. And I think that
10 would be very helpful. Is that all right?

11 GENOA: Yes, I know exactly what I was gonna say. Paul
12 Genoa, NEI.

13 [LAUGHTER]

14 GENOA: I want to say that obviously, steel is a very
15 important product. It is used substantially in the millions of pounds.
16 In our plant's specialty's stainless as well as a structure steel,
17 carbon steel. The bulk of our material's carbon steel, and we do
18 release materials from our plants routinely in the form of scrap metal
19 when components are changed out, equipment breaks, etc. And when we
20 decommission a facility, there'll be much structural material in the
21 form if beams and I-beams and steps and staircases and all sort of
22 stuff.

23 And I have learned about the orphan source issue, and I am
24 very sympathetic with the concerns of the industry. And I am also very
25 aware about nuclear stigma, radiation phobia, what it does to an
industry, because I live in it everyday. So I am sympathetic.

But the way that we, the way that we regulate and control
our activities -- I can understand that it's hard for you to understand
it because it is so grossly over-conservative that no rational being
would believe that that's how we actually do things. But I think you've
heard from Kristin that it's actually not just the electric utilities

1 but also industry, medicine, and everyone else.

2 So there is a very high compliance and a very high care and

3 huge resources expended to ensure that materials are clean, safe,

4 monitored, etc. And you probably don't need to hear more about that.

5 But I think it's important on the issue -- I don't think we can set a

6 standard that will affect the industry by setting off their alarms. If

7 you set a standard like that, then you're gonna have to mitigate the

8 situation or avoid it somehow.

9 I understand that the analysis that you've done, Tony and

10 others, that, you know, you just take some numbers that come out of

11 these regs and you assume a certain volume and it all gets there and

12 it's gonna set off your monitoring -- and it would under those

13 conditions. But that's another example of the difference between a

14 theoretical study and reality.

15 In reality, we release material. It may have -- on a 400-

16 pound piece of steel, we may find one spot that has contamination. We

17 clean that and then release it. We're nowhere near a fraction of the

18 limit. We're nowhere near a fraction of the standard. And so it's

19 unlikely, in my opinion, that if a carefully constructed standard were

20 developed and it was implemented by our industry the way we implement

21 business, that it would result at false alarms at your facility. But

22 again -- so that's it. Thank you.

23 LESNICK: To make it easier -- from you and your perspective

24 about steel and how it's used and the implications of this material.

25 ERICKSON: Kristin Erickson, Michigan State University.

Current steel problems are not much, but they will grow as we continue

to decommission parts of our accelerator and build new accelerators.

The other things that we have as impact, as I mentioned

before, was the decommissioning of building ventilation systems, which

are many stories tall -- ventilation ducts, fan blades, some of them

steel, some stainless. And those components are, although not

1 tremendously problematic as far as how often you find radiation, if it's
2 there, it's problematic because it's a big piece of equipment. And
3 that's our primary use of the current controls, or just as we do with
4 everything else, survey down to nothing -- a monstrous endeavor to
5 assure that there is no contamination of any kind. Tritium on up.
6 Thank you.
7 LESNICK: Pete, maybe this is the time to turn to you then,
8 and maybe for some others, for any reflections on this. We'll take five
9 minutes or so of comment before we start wrapping up.
10 HERNANDEZ: Peter Hernandez. Thank you. I'd like to
11 addresses the questions and comments made by Frank Cardile, Bob Mack,
12 Rob Lieb Paul Genoa, at least to some extent.
13 The challenge that NRC faces is a complex and multifaceted
14 problem. The frailty of the licensing and regulatory system has put the
15 public at risk with respect to loss of control of orphaned sources. And
16 since 1983, there have been 24 meltings in steel, aluminum, copper, lead
17 and aluminum production facilities. So steel companies have learned the
18 hard way that they cannot let their guard down, and they've pushed
19 manufacturers of the radiation detection equipment to improve the
20 detection limits. And they've demanded that their suppliers pre-screen
21 scrap if they want to sell it to them.
22 Steel companies have also learned the hard way, in the '70s
23 and '80s, that we must be customer-focused if we're going to become and
24 remain globally competitive. And that's where the industry is today.
25 If the Nuclear Regulatory Commission adopts a free-release
limit for steel products, it'll be creating a new scrap product, some of
which has detectable levels of radioactive material. This new product,
we believe, will trip our alarms, our members' alarms, and it will be
rejected.
The risk of ignoring the alarm, for the steel companies,
creates both potential employee and community health risk and a

1 significant economic risk, if also buried in that material is a shielded
2 source that would have, typically, by our calculations, significantly
3 lower emission levels than would the free-release scrap at the free-
4 release level. Consequently, we believe it would be imprudent for the
5 NRC to establish a free-release limit without considering the role of
6 the orphaned source problem in this whole equation.
7 Market-based solutions will work when you have a willing
8 seller and a buyer. We only have half the equation here because the
9 scrap metal customers who serve the general market in the United States
10 don't want this new product. Thank you.
11 LESNICK: Thank you very much. Do we have any other last
12 comments about steel before I turn, Don, probably to you to talk about
13 next steps and clarify what else will be happening in this process?
14 Tony, is that your card?
15 LA MASTRA: Yeah. Tony La Mastra. I guess I visited
16 Alaron, which is a facility that decontaminates commercially,
17 decontaminated materials, at the wrong date, because when I went there,
18 there were several I-beams that had much more than a single spot. There
19 were large -- I don't know if they were turbines, or whatever they were,
20 but they were big hunks of material. And if you looked at, at the
21 metal, it basically had areas that were much higher than 5,000 DPM per
22 hundred square centimeters. But if you averaged over the whole piece,
23 it was significantly lower.
24 I'm, I know when people ask me about the safety of radiation
25 in a steel plant, I have a tendency to present a relatively rosy
picture. And I guess I'm not sure that reality is exactly, you know,
the one tiny little spot all the time.
Secondly, something that really hasn't been looked at is the
cost of disposal. If -- and again I have no numbers for what a reactor
would pay for, say, cubic foot of rad waste --
GENOA: $375.

1 LA MASTRA: How much?

2 GENOA: $375.

3 LA MASTRA: Okay --

4 LESNICK: Keep going, Tony, but be succinct. I'm aware we need to get public comments.

5 LA MASTRA: Okay. Typically, if a steel mill or a scrap yard finds a piece that they are forced to dispose of, they are looking at $2 to $3,000 for that small little piece, which I think is not what the NRC ought to be encouraging for the little guy essentially to be pushed into that kind of a bracket.

6 Third, I just did a quick calculation, and if my reading of NUREG 1640 is correct, the proposed number, or the number that they used for cesium, is one picocurrie per gram, roughly. I think it's 1.08 picocurries per gram. If you take -- again, I'm not arguing that a piece of steel would be uniformly -- yeah. I can't speak any faster, or I'm really gonna be coughing and that poor guy over there is gonna end up blowing his ear drums out. But if you take tons, throw it into 100-ton heap of steel and it's contaminated at 1 picocurrie per gram, the dust that's produced is now at 6 picocurries per gram. That exceeds the limit that the NRC proposed to the Steel Manufacturer's Association, back, I think '93 or '94, of 2.

7 So in a sense it looks like what you are setting as a potential limit could possibly cause the steel industry to exceed what you're limiting them to. It would definitely exceed the 1 picocurrie per gram of dust if they then had to dispose of it.

8 LESNICK: Thank you, Tony. I appreciate it. Charles.

9 WILK: My comment is not directly about steel. Will I have an opportunity to say it?

10 LESNICK: This is it. This is the end of the line, so make it quick please.

11 WILK: Okay -- I've got the mic. I just wanted to relate

1 something. We've heard a lot of things from the recipient industry
2 concerning perhaps what you might consider paranoia on our part, of
3 public opinion. But you, the Commission of the NRC may wish to consider
4 that there's a superfund site in Denver called the Denver Radium site,
5 part of the Shaddock Chemical Superfund clean-up out there. And I
6 believe in 1993, the EPA came out with a remedy decision for the site
7 that involved solidifying contaminated material, radioactive material,
8 on-site and placed within the city limits of Denver.
9 And the regional administrator for Region 8 of the EPA
10 signed that remedy decision, and the region then implemented, did a
11 remedial action, did this remediation at the site, placed this material
12 on-site, within the city limits of Denver. All the time that this was
13 going on, the decision process, the public and local government
14 politicians were incensed about this remedy, even though the EPA --
15 which is part of the government -- said that this remedy was protective
16 of human health and the environment. And very recently, this fall, the
17 U.S. EPA out of Headquarters decided that that material needed to
18 removed. So here's a remedy that was -- the government said it was
19 protective of human health and the environment, and as a result of
20 public opinion, ripped out the material and had to dispose of it
21 elsewhere.
22 LESNICK: Thanks. Charles. Paul, and then Mike. And then
23 we will take public comment and hear from Don. And then we need to
24 close this up.
25 GENOA: Paul Genoa, NEI, just very brief. The entire
discussion on steel has revolved around recycling. I tried to point out
early, because the bulk of our steel is just carbon steel scrap, and
it's low value, that the economic advantage of recycling it is not
significant. It's cost avoidance of shipping it across the country to a
low-level waste site, and we have not spent any time talking about
disposal in non-Part 61 facilities, which would be, has been done, it

1 was done recently in Florida, a turbine rotor. And it could be done.
2 And that's something that should be discussed at some point.
3 LESNICK: Thank you. Mike, briefly please.
4 MATTIA: In just about every city or region of every country
5 on the planet, there is a recycling facility. We're not talking about
6 the curbside recycling. That's been a phenomenon over the last ten or
7 twenty years. We're talking about metal recycling facilities that, in
8 the U.S., date back to the Revolutionary War period. Metal is recycled
9 daily, tens of thousands of tons. Metal is presented to a scrap
10 recycler, and the scrap recycler has the technology and the equipment
11 and the know-how to create that metal and to create it in a form that's
12 acceptable by an entity who will take it and melt it and create
13 something new in order to preserve yours and preserve the planet in
14 other ways.
15 The recycling industry has always been at the forefront of
16 what is good and essential, and we want to be there for this issue as
17 well, and we'd like to be able to move from here to dialog, which will
18 keep the process of what is good for industry, what is good for the
19 public, what is good for the planet, to continue so that everyone will
20 be in agreement as to what works and what's acceptable. And then that
21 can be turned over to our regulators to create a rule to implement that.
22 LESNICK: Thank you very much, Mike. Let me see if there's
23 anyone who would like to make public comment at this time. Can I see a
24 show of hands, please.
25 [NO RESPONSE]
LESNICK: Okay, I see none.
Before I turn this to Don Cool for discussion about next
steps and any other comments Don would like to make, let me just say on
behalf of myself and colleagues at Meridian Institute, Barbara Stinson,
Sarah Whalen, Rebecca Hensey, thank you very much for participating,
those around the table and observers. Those who participated in four

1 workshops -- we encourage you to stay involved, and stay in touch with
2 this ongoing process. The to the NRC Staff, thank you for making this a
3 very transparent process, and good luck.
4 COOL: Thank you, Mike. Let me do a couple of things very,
5 very quickly for you. First let me add my thanks to each of you for
6 your participation. I think this has been an extremely useful couple of
7 days. We've really gotten to some details and some information, and I
8 think we've really been able to put a finer point on a number of issues
9 that will really be useful to me and my staff as we start to take the
10 next steps.
11 The Commission has asked us to bring them a summary of all
12 of these public interactions, and some recommendations for how to
13 proceed in March of 2000, just a little over three months from now. If
14 you wipe out the holidays, we really have less than three months to try
15 and assemble that particular package. We will do that with all of the
16 informations that are available -- the transcripts, written comments --
17 and those are still open until the 22nd. And I would encourage you, as
18 is often the case, on the flight home, if you suddenly think of
19 something, write it down and send it in so that we have the advantage of
20 all of that information.
21 The transcript of the meeting should be available next week.
22 We will post that on the website. If you've got a really fast modem
23 and want to work on downloading that, I suppose you can do that. Or
24 you, too, can get your very own six-inch copy of paper. We could
25 probably manage that if you want to whack a couple of trees.
Meridian, as an additional part of their contract, will be
preparing a formal summary. That will be in three weeks or so, a 15- or
20 page digestion of the details. Sarah Whalen has been sitting over
here at the side or in the back, on the laptop, busy adding some of
those particular levels. So there will be those two particular
summaries.

1 We have a website. There have been several references to it
2 over the course of time, which has a number of the information. I
3 encourage you to keep checking that. We have put together a list server
4 -- I'm not sure whether you could consider it active, because I'm not
5 quite sure anyone's subscribed yet. But we have tried to establish that
6 mechanism. I'd encourage you to try and do that, so that's yet another
7 mechanism for you to find out when some of the next steps in the process
8 will be.
9 As my staff puts together the commission paper, the summary
10 of comments, that information, we expect that some of the working group
11 meetings that the working group has will be open to the public. We will
12 announce those, try to get those up on the NRC's formal site for noting
13 public meetings, get that on the list server, so that you have an
14 opportunity to interact with us. Those will probably be half-day
15 sessions to look at a particular thing, like the summary of comments or
16 some of other pieces so that we can do that in a way that you can get
17 into it and look at it.
18 The draft materials that they will be looking at will be
19 available for comment. We'll put those on the site so that you can read
20 them and tell us whether we have or haven't captured those particular
21 items or there are things that really don't reflect quite the way you
22 saw them, so that we try to have as best a representation to the
23 Commission as possible.
24 The actual Commission briefing will be an open public
25 meeting. It will be in late March. I don't think we've actually got
official dates scheduled yet. The Commission has in times past invited
stakeholders to the table. That is a decision that the commissioners
will need to make, so I do not know whether that invitation will be made
in this particular case or not, but we will again certainly let you know
as we go through that process.
The Commission, following that meeting and with the paper,

1 will then be making some decisions and giving the Staff some direction
2 of whether that's to proceed in some particular rulemaking avenue to
3 continue a set of interactions to stop entirely for a little while or
4 some other combination of things. Obviously I can't predict yet. One
5 of the great joys of the system we've got is that we can engage in a
6 very serious and lively and far-reaching discussion within the
7 Commission, just as we have here around the table and in other public
8 meetings.
9 So that gives you an idea of some of the next steps in the
10 process. There will be opportunities for you to see information and
11 continue to interact with us. Obviously if the Commission does direct
12 rulemaking at some point, if that were the decision to be made, we would
13 then enter into a process which would also be an open public process,
14 and there will be lots of additional opportunities for interaction
15 before we ever got to anything which would constitute a proposed
16 rulemaking.
17 And with that, unless there are specific questions, I wish
18 you all safe travels. Be careful on the roads out there, because that's
19 a much more risk-informed situation. And have a good afternoon. Bye-
20 bye.
21 [Whereupon, at 3:00 p.m., the workshop was concluded.]
22
23
24
25