

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: RELEASE OF RADIOACTIVE
MATERIAL WORKSHOP

Location: San Francisco, California

Date:*Wednesday*
~~Thursday~~, September 15, 1999

Pages: 1 - 239

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

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11 RELEASE OF RADIOACTIVE MATERIAL WORKSHOP

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15 Radisson Miyako Hotel
16 1625 Post Street
17 San Francisco, California

18
19 Wednesday, September 15, 1999

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24 The above-entitled meeting commenced, pursuant to
25 notice, at 8:30 a.m.

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P R O C E E D I N G S

[8:30 a.m.]

1
2
3 MR. CAMERON: . . . One is to keep the discussion
4 focused and relevant on whatever agenda topic we're
5 discussing at the time.

6 Secondly, to help ensure that the material that is
7 presented by the NRC staff and also the feedback that we get
8 from you is clear and understandable to all.

9 Thirdly, I want to help develop what I call
10 discussion threads, rather than the unrelated monologues
11 that jump from one unrelated issue to another. And I'll say
12 some more about that in a couple of minutes.

13 Another goal that I have is to make sure that
14 everybody gets an equal opportunity to speak and participate
15 during the meeting over the next two days.

16 And, finally, to try to keep us on schedule, so
17 that we can cover all of the important topics that are on
18 the agenda.

19 Now, I think Don has laid out a pretty good idea
20 about what the NRC's primary purpose is here for this
21 meeting. And the NRC does want to hear from you on this
22 issue. There will be some staff presentations to give you
23 some background to aid in the discussion, but we really want
24 to listen to you and talk to you. So we're not going to
25 kill you with presentations, although even the shortest of

1 presentations can be deadly. But we'll also try to avoid
2 that.

3 The ground rules for the discussion are fairly
4 simple. The NRC staff is going to make a presentation on
5 the agenda item that you will see listed on the agenda. And
6 we're going to go over that agenda in a couple of minutes.
7 And then what I'd like to do is after each NRC staff
8 presentation, I want to go out to you for clarifying
9 questions, if necessary, on the presentation. And for
10 discussion: Your thoughts of perspectives on that
11 particular topic that was raised by the staff.

12 If you wish to speak, please raise your hand and I
13 will either come out to you with this talking stick or there
14 are microphones in the aisles. And we are keeping a
15 transcript. Nancy is our stenographer over here and to help
16 her out, a couple of things:

17 One, please state your name and affiliation, if
18 appropriate, before you talk. And, secondly, let's just
19 have one person talking at a time. And that will allow us
20 to get a clean transcript. And, also, all of us can give
21 our full attention to what that particular person is saying.

22 Now, after we hear your comment or your question
23 I'll go to the staff or perhaps others of you in the
24 audience to try to follow that issue through. So, I may not
25 take all of the people who want to speak in the order in

1 which they raise their hands. We're going to try to develop
2 a discussion on these issues to the extent practical. And
3 these are the discussion threads I mentioned earlier.

4 Try to be concise in your comments so that
5 everybody can get a chance to talk. We have a -- I think, a
6 nice, manageable number of people here, and so I think we
7 have plenty of time, but we may have to ask you to perhaps
8 summarize at some point if we have to need -- if we need to
9 get on to the next agenda item.

10 Now, not all of the comments are going to fit
11 squarely into whatever agenda items that we're discussing,
12 but we don't want to miss discussing those topics. So, what
13 I'll do is I'll list them in what I call a paddock. Many of
14 you may know it as a parking lot. And we'll come back and
15 we'll revisit those issues at some other point during the
16 meeting.

17 We do have a sign in sheet outside for those of
18 you who want to receive further information, various
19 documents, from the NRC. And I believe Meridian is going to
20 pass out some sign out sheets for everybody. In case you
21 didn't register, it will just make it more convenient for
22 you.

23 In that regard, if you want a copy of the
24 transcript, it's going to be on the NRC web site, but we
25 will also send you a copy of that transcript. And we will,

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1 I think, be able to send you an electronic version if that
2 is easier. So, on this -- if you want to get those
3 documents, please -- please let us know.

4 And I want to do an agenda check briefly with you
5 before we get started. But I would like to give everybody a
6 chance to introduce themselves. Those of you who want to.
7 I don't want to require anybody to introduce themselves, but
8 I think it's always useful if people know who their
9 colleagues are in these meetings and who's going to be
10 talking.

11 So, what I'm going to do is come around and let
12 you introduce yourselves, tell us what your affiliation is,
13 if that's appropriate, and give us a short comment on what
14 your interest or concern is on this particular issue, and so
15 we'll have an idea of where everybody -- what their
16 perspective is before we really get into this. I'm going to
17 start right over here.

18 MR. NELSON: Bob Nelson, Division of Waste
19 Management, Nuclear Regulatory Commission.

20 MR. CAMERON: Okay. Thank you, Bob.

21 MR. BAILEY: Ed Bailey, with the California
22 Department of Health Services, radiologic health branch.
23 And as an agreement state, we're very interested in the
24 regulations that NRC may develop in this area.

25 MR. CAMERON: Okay. Thanks, Ed.

1 Barbara, you've already done your thing. All
2 right.

3 MR. MASCHKA: I'm Paul Maschka, from General
4 Atomics, and we're mainly interested in this new regulations
5 because we've been involved in decommissioning our
6 facilities for the past nine, 10 years. And we have
7 difficulty meeting the present regulations, and any
8 restrictions on disposal to clean waste or -- will be --
9 have a big impact on our activities.

10 MR. CAMERON: So, you have waste that you're going
11 to need to dispose of?

12 MR. MASCHKA: Definitely.

13 MR. CAMERON: One way or the other. All right.
14 Andy?

15 MR. WALLO: Andy Wallo, Department of Energy,
16 Office of Environmental Policy. And we're responsible for
17 equivalent standards within the department for our
18 operations, and we've been working with the Commission and
19 the other federal agencies in this area.

20 MR. CAMERON: Okay. Thank you, Andy.
21 Tom?

22 MR. MADDEN: I'm Tom Madden. I'm with the Nuclear
23 Regulatory Commission, and I'm in the Office of
24 Congressional Affairs.

25 MR. TURNER: I'm Ray Turner, with the David Joseph

1 Company. We're the -- I guess the oldest and largest
2 recyclers of scrap metals in the world, and so we're very
3 much interested in the proceedings here.

4 MR. CAMERON: Okay. Thank you, Ray.

5 Paul?

6 MR. GENOA: Good morning. My name is Paul Genoa.
7 I work for the Nuclear Energy Institute. My formal training
8 is in environmental health, and my professional career has
9 focussed on public radiation safety issues.

10 MR. CAMERON: Terrific.

11 Mark?

12 MR. SHAFFER: Mark Shaffer, with the Nuclear
13 Regulatory Commission, Region 4 four office. I'm the state
14 agreements officer in our office, and we work closely with
15 Ed Bailey and the other agreement states on the development
16 of regs.

17 MR. HENDERSON: Breck Henderson, Nuclear
18 Regulatory Commission, public affairs. If you need any
19 help, if you're a newspaper reporter or anything and I can
20 help you visit with the right people, just get in touch with
21 me and I'll be glad to help.

22 MR. CAMERON: Great. And just to emphasize that,
23 if there is any assistance that we can give to any media
24 that are here, Breck is the person to touch base with.

25 MR. SCHOONOVER: Mike Schoonover, Lawrence

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1 Berkeley National Lab. I'm in the radiation protection
2 group. And we, of course, have to meet Department of Energy
3 as well as the NRC and state standards when we release
4 materials. I'm real interested in the rule making.

5 MR. CAMERON: Okay. Thank you, Mike.

6 MR. MC CRACKEN: Kenneth McCracken, an employee of
7 Southern Nuclear Operating Company.

8 MR. CAMERON: All right.

9 MR. CARVER: Mark Carver. I work for Entergy. We
10 run two decommissionings up in the northeast, and we
11 currently run five nuclear power plants, four within the
12 southeast region and one in Massachusetts.

13 MR. RAINES: Bill Raines, with TBA, as a -- with
14 five commercial nuclear power units, we're very interested
15 in this rule making process.

16 DR. LULL: I'm Dr. Bob Lull. I'm the Chief of
17 Nuclear Medicine at San Francisco General Hospital with the
18 University of California. Today I'm representing both the
19 Society of Nuclear Medicine, American College of Nuclear
20 Physicians, and I'm also representing the Southwest
21 Low-Level Radioactive Waste Compact Commission, of which I'm
22 one of the California commissioners.

23 MR. CAMERON: David?

24 MR. BELK: I'm David Belk. I'm the director of
25 environmental protection services for the University of

1 California, the Office of the President. I'm here mostly
2 representing the interests of the low-level radioactive
3 waste managers on our nine campuses and our five medical
4 centers and our field stations.

5 MR. CAMERON: Thank you, David.

6 MR. CIVIC: I'm Terry Civic. I'm manager of
7 safety and health for LTV Steel Company. I'm representing
8 the interests of AISI and SMA. We have a -- very concerned
9 about the release of material from -- as a result of this
10 regulation.

11 MR. HOLDEN: Good morning. I'm Robert Holden,
12 Director of the Nuclear Waste Program with the National
13 Congress of American Indians. The NCAI has approximately
14 220 tribal governments that belong to the organization, and
15 I monitor disposition of radioactive waste materials and
16 emergency response issues and a few other environmental
17 quality issues. Tribes, as you may know, have an
18 environmental regulatory authority within their borders.
19 They're also impacted by transportation of a lot of
20 hazardous materials on seeded lands, which are off
21 reservation, and sometimes there is not the agreement
22 between states and tribes over disposition of materials such
23 as this, and I've just been monitoring, because of the
24 different impacts and pathways to cultural impacts to Indian
25 nations. Thank you.

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1 MS. WESTRA: Good morning. I'm Heather Westra,
2 Environmental Program Director for the Prairie Island Indian
3 Community in Minnesota. We're very interested in this rule
4 making because there's a commercial nuclear power plant
5 located right next door to the tribal reservation. So, I'm
6 following this.

7 MR. LEWIS: I'm Mark Lewis from Edison
8 International at the San Onofre Nuclear Power Plant in
9 Southern California. I manage the clearance program. We're
10 decommissioning our 450 megawatt pwr at unit one, so I need
11 to understand what's going on.

12 MR. GOLDIN: Eric Goldin, also from Southern
13 California Edison.

14 MR. CAMERON: Thanks, Eric.

15 MR. PETERSON: Good morning, I'm Scott Peterson.
16 I'm Communications Director for the Nuclear Energy
17 Institute. NEI represents about 275 companies that use
18 nuclear technologies from nuclear power plants to medical
19 applications in universities and national labs.

20 MS. CHAN: I'm Grace Chan. I'm with Los Angeles
21 County Sanitation Districts, and we operate regional
22 municipal solid waste facilities in Los Angeles county. I'm
23 also a member of the Solid Waste Association of North
24 America, which is an international organization of folks
25 that manage municipal solid waste.

1 MS. MC BAUGH: I'm Debra McBaugh from Washington
2 State. I'm representing two different groups, CRCPD, the
3 Conference of Radiation Control Program Directors. I'm
4 chair of their DND committee, so this is of particular
5 interest to us. And then I work for the Department of
6 Health, and we're an agreement state, so we care deeply
7 about what regulations come down.

8 MR. KARNAK: I'm John Karnak. I'm with the U.S.
9 Environmental Protection Agency. I'm the senior director
10 for clean up and re-use. And the EPA has been accused of
11 lots of things, but we like to think that we are interested
12 in protecting the public and the environment.

13 We have been working in the area of recycling of
14 material, rather looking at the technical aspects of
15 recycling material for the last four or five years and have
16 done some technical studies. We're also interested and
17 concerned about lost radiation sources, as I think David
18 Joseph Company is and some of the other recyclers, as well
19 as the potential for material coming into the United States
20 from foreign countries, where radiation sources or other
21 material has been melted or used in consumer products.

22 MR. CAMERON: I'd love to follow this discussion
23 thread about the things that EPA has been accused of, but
24 maybe we won't do that.

25 MR. BURKLIN: My name is Rich Burklin. I work for

1 Siemens Power. We produce nuclear fuel and we obviously
2 will be effected by these regulations.

3 MR. KENNEDY: Good morning. I'm Bill Kennedy.
4 I'm an associate with Dade Moeller & Associates. Today I'm
5 here representing the Health Physics Society. I serve on
6 the Board of Directors of the Health Physics Society, and I
7 serve as the chairman of an ANSI standard effort,
8 ANSI-N1312, dealing with the subject of clearance release
9 materials. That standard began effort in 1964, and I'm
10 happy to announce that the final standard was approved by
11 ANSI in August of this year.

12 MR. DEVGUN: Good morning. My name is Jaz Devgun.
13 I'm also the presenting two -- or wearing two different
14 hats. One, I am Chairman of the American Nuclear Society's
15 Special Committee on Site Clean Up and Restoration
16 Standards. We have made comments in the past on the
17 decommissioning rule, LTR, licensed termination rule, in the
18 past, as it walked through the various stages of drafts.

19 Since '94 I served as the vice chair during that
20 time, but two years ago I took over as chairman. So, we are
21 reviewing. We have also forwarded comments to NRC on DG
22 4006. So, we are very interested in following what's going
23 on with the clearance for the materials.

24 Number two, I also -- I am working for Sargun
25 Galendi as a senior engineer, working at the gut point

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1 decommissioning project, so we are definitely interested in
2 the field to know where we are going with the inspector,
3 because certainly the economics of the quantities of these
4 materials certainly makes it imperative that we have a
5 mechanism to deal with them.

6 MR. CARDILE: I'm Frank Cardile with the Nuclear
7 Regulatory Commission in the office of nuclear material
8 safety and safeguards. I'll be -- I've been working on this
9 effort. I'll be making the presentation for Session No. 4.

10 MR. CAMERON: Okay. Let's go up here to the
11 front. You'll be hearing from Trish in a minute, but please
12 introduce yourself.

13 MS. HOLAHAN: I'm Trish Holahan. I'm with the
14 Division of Industrial and Medical Nuclear Safety at the
15 NRC.

16 MR. CAMERON: Okay. Thank you, Trish.
17 We're going to go over to this side of the room.
18 Tom?

19 MR. ESSIG: I'm Tom Essig. I'm here representing
20 the NRC's Office of Nuclear Reactor Regulation.

21 MR. MECK: I'm Bob Meck. I'm with the NRC. I'm
22 the lead contact for much of the technical information on
23 clearance.

24 MR. HUFFERT: I'm Tony Huffert. I work with the
25 Division of Waste Management, NRC. I'll be making

1 presentations three and seven today -- tomorrow.

2 MR. GNUGNOLI: George N. Gnugnoli, also with the
3 NRC in the Division of Waste Management.

4 MR. LEQUIA: I'm Darryl Lequia, a director with
5 Pico Energy. I'm interested in both the operational and the
6 decommissioning impacts of the regulation.

7 MR. GIANUTSOS: I'm Phillip Gianutsos with GTS
8 Duratek. We're a decommissioning and decontamination
9 services provider as well as we offer some options for
10 low-level waste processing. So, this is obviously some rule
11 making that will effect our line of work.

12 MR. TREBY: Good morning, my name is Stuart Treby.
13 I am Assistant General Counsel with the U.S. Nuclear
14 Regulatory Commission. I head up a group of attorneys who
15 provide legal support for the rule making efforts.

16 MR. CAMERON: Thank you, Stuart.

17 Brian?

18 MR. HEARTY: I'm Brian Hearty. I'm a health
19 physicist with the U.S. Army Corps of Engineers, and I'm
20 interested in how this issue will relate to our
21 environmental restoration and reactor decommissioning
22 activities.

23 MR. WAPLES: I'm -- excuse me. I'm Rick Waples.
24 I'm also with the U.S. Army Corps of Engineers, and we're
25 very much interested in this rule making process and hearing

1 the input from both sides.

2 MR. CAMERON: Thank you, Rick.

3 MR. SUMMORVILLE: I'm Alan Summorville with ICF
4 Consulting. We're providing various types of support to NRC
5 right now in this clearance effort.

6 MR. BROWN: My name is Roy Brown. I'm Director of
7 Regulatory Compliance for Mallinckrodt. I'm also here today
8 and tomorrow representing the Council on Radionuclear
9 Radiopharmaceuticals. I'm Chairman of the Regulatory and
10 Legislative Affairs Committee of CORAR. The
11 radiopharmaceutical manufacturers are obviously very
12 concerned about any clearance standards that may be
13 developed here.

14 MS. HARBURGH: Good morning, I'm Cindy Harburgh.
15 I'm representing the Office of Administration, U.S. NRC.

16 MS. HORNIBROOK: Hi, I'm Carol Hornibrook. I
17 manage the Electric Power Research Institutes research on
18 low-level waste and radiation protection.

19 MR. SOMERVILLE: I am Mark Somerville. I'm the
20 senior engineer for Pacific Gas & Electric Company's two
21 operating plants in central California, central coast, and
22 for the decommissioning plant up in Eureka.

23 MR. CAMERON: Great. Thank you, Mark. And thank
24 you all for those introductions. We have a good group of
25 people and that was very helpful to find out who everybody

1 is and what your interests are.

2 Barbara?

3 BARBARA: Anyone else need to sign in? There are
4 some sign-in sheets going around. If you'd like to make
5 sure that you receive information in the future or register
6 that you were here. I'm going to make copies to circulate
7 so you can get to know each other a little better. Where
8 are the sign-up sheets? Raise your hand if you have one.

9 MR. CAMERON: Does everybody have a -- a copy of
10 the agenda and the view graphs that are going to be shown?
11 Okay. Let's get copies of those in here for people so that
12 everybody is starting off at the same point. Do we have a
13 stack? Great. Who needs one of these? Andy, do you need
14 one? Doctor? Okay. We're going to pass these guys out.
15 And I think we need copies of the agenda also for people.
16 These are the view graphs. We need the agendas.

17 BARBARA: The final agenda is a little bit
18 altered.

19 MR. CAMERON: Okay. Thank you very much. I just
20 want to briefly run through this to give you an idea of
21 what's going to be going on, and also to -- to see if we
22 have a place on here for everything that you're interested
23 in. So, let's do an agenda check here.

24 The first session is going to be presented and
25 teed off, so to speak, by Trish Holahan. And it's basically

1 why are we here today. I think a very simple expression of
2 what that's going to be about. And Trish is going to talk
3 about NRC's role. Why this process has been initiated. And
4 we're going to focus on process in that particular section.

5 And as I mentioned before, after each
6 presentation, we're going to go out to you for discussion of
7 that topic.

8 Trish is -- we're going to take a break after
9 that. When we come back, Trish is going to do another
10 presentation about how does what we are discussing today fit
11 into the overall picture, and talk about types of solid
12 materials that are out there. Try to give people an idea of
13 what the scope and nature of this problem is. And we're
14 really looking forward to -- to hearing from you on this --
15 this issue. In other words, what's the need here for what
16 the NRC is trying to do? What's the problem that we're
17 trying to address?

18 Now, after lunch, we're going to -- we're going to
19 take lunch, we're going to come back at 1:30 and we're going
20 to go to Tony Huffort. Correct, Tony? And Tony is going to
21 talk about the NRC's current approach, case-by-case approach
22 to controlling the release of solid materials, basically reg
23 guide 1.86, And after that discussion we're going to take a
24 break and we're going to get into the alternatives, besides
25 the current approach. What alternatives can be used to

1 address the issues of the release -- the control of the
2 release of solid materials. And Frank Cardile from the NRC
3 staff is going to be doing that presentation for us.

4 So, we're going to hear about all of those
5 alternatives. And what I'd like to do is use that as a
6 brainstorming session, so to speak, to identify as many
7 alternatives that the NRC hasn't identified.

8 Then we're going to go into looking at what are
9 the impacts of all this, of all these various alternatives.
10 And we're going to start, appropriately enough because of
11 the NRC's mission, to focus on health and environmental
12 impacts. And Giorgio Gnugnoli, from the NRC staff, is going
13 to do a presentation for us on those types of impacts.
14 We'll have a discussion. And I've already gotten you over.
15 We're on Thursday already. Giorgio is going to do another
16 presentation about economic impacts.

17 And then on Thursday afternoon, Tony Huffort again
18 is going to talk about what are some implementation
19 feasibility issues in terms of detectability. How do you
20 implement these things. What sorts of implementation
21 problems do you see.

22 And then we're going to have a summary discussion
23 at 3:00 o'clock. And we will get you out of here by 4:00.
24 We may end early. We'll just have to see how the discussion
25 goes. We want to not be real rigid about these time frames,

1 because there may be one area that is a particular hot topic
2 for discussion with all of you. But this is our guide for
3 the next two days.

4 So, are there any comments or questions on the
5 agenda before we begin?

6 Okay. Great. Well, we look forward to the next
7 two days. And what we'll do now is we'll go to Trish
8 Holahan for the first presentation.

9 MS. HOLAHAN: Okay. Thank you, Chip. Can
10 everybody hear me? No. Okay. All right. How's that?

11 Well, I'd just like to reiterate what Don Cool and
12 Chip have said, is that we're really looking to hear from
13 folks here and get some input and insights as to what we're
14 doing and where we're going.

15 I would like to start off a little bit as to just
16 explaining why are we here today and what is the process
17 that we're using and where are we in that process and have a
18 little bit of discussion on that.

19 NRC's purpose for being here and discussing these
20 issues is as part of NRC's congressional mandate and its
21 responsibility for protection of the public health and
22 environment.

23 Before I go further into why we're here, let me
24 just address the question of what is NRC's role and
25 authority. And I know everybody has copies of the slides,

1 and I apologize for having you flip pages, but this -- this
2 slide is actually under the session two, but I thought it
3 was important that we addressed it first, so I'm going to
4 ask you to just bounce for that one, but I assure you that
5 after that we should be in some form of a linear order.

6 NRC's authority and responsibilities were
7 established in the Atomic Energy Act of 1954 by Congress and
8 then it was amended in 1975. Now, the material that NRC is
9 responsible for, what we call AEA material, or Atomic Energy
10 Act material, is not all radioactive material, but it's that
11 material that's related to the nuclear fuel cycle, and also
12 that material that's made radioactive in a reactor. It does
13 not include naturally occurring radioactive material or
14 material that is made radioactive in an accelerator or a
15 machine.

16 NRC basically issues regulations which provide for
17 the protection of public health and safety from the use of
18 radioactive materials by its licensees. In addition, it
19 regulates and inspects the use of the radioactive material
20 by licensees to make sure that it's used in a manner which
21 protects public health and safety. So, we regulate not just
22 the use but the possession and the disposition of it.

23 What is NRC's interaction with the environmental
24 protection agency? EPA does not regulate licensees, per se,
25 in the same manner that NRC does, but sets generally

1 applicable and environmental standards that NRC then
2 implements through rule making for radioactive material that
3 I mentioned before under the AEA.

4 By the way, let me -- and I know I've used a
5 couple of acronyms now. There is a list of the different
6 acronyms. We tried to hand most of them out, but if you
7 don't have one, there are copies still available of all the
8 acronyms that we do have a tendency to use.

9 Anyway, EPA is not currently considering rule
10 making in this area, and therefore, in the absence of EPA
11 standards, NRC has the authority to set standards for its
12 licensees in that particular area.

13 Now, what area are we talking about? And if we
14 can go on to the next slide, and as to why and how we're
15 engaged in this process is, you know, first, why is NRC
16 examining its approach for controlling solid materials with
17 small amounts of radioactivity? Well, if I may go back to
18 the introduction, we talked about the fact that there are
19 solid materials at licensed facilities that will need to be
20 disposed of. And they range from containing very large
21 amounts of radioactivity to no activity at all. And all of
22 this material will ultimately need some form of disposition
23 in a safe means.

24 What we're going to focus on today is that some of
25 the material has very small amounts of radioactivity, and

1 the overall question is what should be done with this
2 material, how should we handle this material. For example,
3 consideration could be given to whether all materials should
4 be buried in a licensed low-level waste disposal site, or is
5 there a safe way to reuse or recycle some of these materials
6 if radioactivity levels are low enough. Again, there is a
7 growing interest in recycling and conserving resources, and
8 if there is material that poses a very small risk to the
9 public, is there some safe way of reusing this.

10 Anyway, while there are standards for disposing
11 the material with large amounts of radioactivity at licensed
12 burial sites, there are no generally applicable -- oh, thank
13 you -- no generally applicable NRC regulations or a national
14 standard for control of most of these materials.
15 Nevertheless, and you've heard this morning, that licensees
16 still seek to release solid material when equipment is
17 obsolete or no longer useful, or when their facility is
18 being shut down and then decommissioned.

19 In the absence of a standard, NRC has developed
20 guidance as to what the acceptable levels are for release of
21 this material, and that's used by both NRC staff and also by
22 licensees.

23 So, currently, decisions are being made on a
24 case-by-case basis. Individual licensees will look at the
25 criteria and come in and make a quest to the NRC or do it

1 through licensing actions, and there will be a further
2 discussion of what the current case is later on this
3 afternoon, as Chip mentioned.

4 However, because it's done on a case-by-case and
5 not specific criteria, it ends up causing inconsistent
6 release levels. Although the guidance is considered safe,
7 it wasn't developed based on those considerations, but
8 rather on the radiation detection instruments at the time,
9 and that was about 25 years ago. So, consequently, there
10 are non-uniform levels of protection.

11 In addition, the guidance that's being used was
12 not reviewed in an open rule making form. Under the
13 Administrative Procedures Act and the National Environmental
14 Policy Act is we are required to look at certain
15 environmental issues and impacts in an open public forum.
16 And so NRC wants to consider all these issues and consider
17 the health and environmental impacts, as well as all the
18 related economic aspects, to assure, as I mentioned earlier,
19 the adequate protection of public health and safety.

20 The next question is where are we in the process?
21 Has NRC made any decisions to date? Well, as many of you
22 may know, in June of 1998, the Commission issued direction
23 to the staff to develop a dose-based regulation for
24 clearance of materials and equipment with residual
25 radioactivity. And the staff was to do this using an

1 enhanced participatory rule making process.

2 Subsequently, in June of 1999, a year later, the
3 Commission approved the publication of an issues paper on
4 this subject which was then published in June 30th of '99 in
5 the Federal Register.

6 The issues paper lays out several alternative
7 courses of action that are open for discussion, and at this
8 point, NRC has not made a decision about the preferred
9 alternative or any possible criteria.

10 In addition, as part of the enhanced rule making
11 process, NRC is holding public meetings to solicit early
12 input from a variety of interested parties in a collected
13 forum, this being the first of the meetings. There will
14 also be subsequent meetings in Atlanta, Washington and
15 Chicago.

16 As I mentioned, we are in the very early stages of
17 considering alternative courses of action and will consider
18 all the public comments, the health and environmental
19 impacts, and the cost effectiveness alternatives as input to
20 the decision making process.

21 What was our purpose for publishing the issues
22 paper? Well, in considering on how to proceed, and if we do
23 proceed, what criteria should we use, the plan to enhance
24 the public participation and have early and ongoing dialogue
25 with all parties. As I say, the issues paper presents

1 issues and alternatives related to the control of solid
2 materials, and we're looking -- using that as a starting
3 point to solicit comments and foster discussion. Again, I'd
4 like to point out that it is not by all means intended to be
5 completely comprehensive, and we're looking for additional
6 ideas and thoughts on the issues paper.

7 We're holding the four public meetings where we're
8 going to listen to and consider the broad spectrum of
9 viewpoints on all these issues. The primary objectives of
10 the public meetings are to ensure all the relevant issues
11 are identified. Are there issues that we didn't think
12 about? Exchange information, not just between NRC and
13 individuals, but between different groups. Identify
14 underlying concerns and perhaps areas of disagreement
15 amongst folks. And where possible, see if we can identify
16 some approaches for resolution. How do we -- how can we
17 reach resolution of this issue. And finally, identify other
18 issues and alternatives that haven't been addressed.

19 We would like to continue to conduct enhanced
20 participation, including opportunities for an ongoing
21 dialogue throughout the process.

22 Well, I mentioned several times an enhanced
23 participatory process. What do we mean by that? Well, let
24 me just go back a step and describe what is a typical rule
25 making process. Well, typically, for -- if we were going

1 forward with rule making, we would be developing a rule
2 making plan, a draft plan which would be shared with our
3 agreement states, and get early and substantive input from
4 the agreement states. Following the Commission approval of
5 that plan, we would develop a proposed rule which would
6 consider cost benefit in accordance with Presidential
7 direction or an Executive Order, and also the health and
8 environmental impacts. And that would be published for
9 public comment, along with all the supporting documents.

10 After the comment period, we would consider all
11 the public comments and prepare a final rule making, which
12 would then be published, and again in the Federal Register.

13 Well, when we talk about enhanced participatory,
14 what additional steps are we talking about? Well, we're
15 looking at getting early input and also ongoing input. To
16 look for additional stakeholder involvement throughout the
17 process. We have the issues paper, as I talked about, in
18 the Federal Register, and it's also up on NRC's web site.
19 Facilitative public meetings. We've planned to place
20 follow-on documents that are developed as staff drafts to
21 allow continuing access for a comment from all members of
22 the public and all stakeholders. There would be public
23 comment capability not just in writing but also by e-mail or
24 posting up in the web. We would have periodic open working
25 group meetings, and we would have updates and briefings of

1 our commission that are open to the public.

2 One of the questions that we're here to ask would
3 welcome suggestions for other means of enhancing
4 participation. What other approaches could also be used.
5 Before we get to that, though, I'd like to just cover one
6 more topic as to in the issues paper. And some of you may
7 have read it, if not, there are copies out there. But we
8 talk about not just the issues paper, per se, but we are
9 also doing a scoping process. This is to comply with the
10 National Environmental Policy Act, and again, I'd say that
11 there would be a further discussion on that later this
12 afternoon.

13 But why are we trying to do a scoping process?
14 Basically, it's very effective and efficient to try and look
15 at these two issues at the same time because we have a room
16 with expertise, and it's to try and maximize the input that
17 we can get. The major consideration of the issues paper
18 identifies potential health and environmental impacts, and
19 as -- as part of the NEPA we're also required to look at
20 environmental impacts, and the scoping process is to try to
21 identify those impacts that we should be considering.
22 Therefore, since the principal issues are essentially the
23 same, we're trying to address the issues at the same time,
24 again being efficient and effective.

25 And at that point I'd like to perhaps turn it back

1 over to Chip and open up for a discussion.

2 MR. CAMERON: Thanks a lot Trish. I don't want us
3 to loose the focus on the question that Trish posed -- and
4 thank you, Giorgio -- "What other approaches to enhance
5 input could also be used?" But before we get to that and
6 comments in general about the NRC process, are there some
7 clarifying questions that we need to address first? Are
8 there questions about any of the material that -- that Trish
9 presented?

10 Okay. I guess that seems pretty straight forward
11 to people. How about this other idea about approaches? I
12 think Trish laid out a number of details. Are there other
13 approaches that people think the NRC should build into this
14 process of addressing this issue that they would like to
15 suggest?

16 Yeah, Paul, do you want to just use that?

17 MR. GENOA: Yeah. Paul Genoa of the NEI. Chip,
18 actually, I want to back up to your previous question,
19 because it occurred to me in reading the information in the
20 issue paper, and even in the invitation letters and in the
21 presentation today we're making the assumption that
22 everything we're talking about here is contaminated with
23 radioactive material, and I guess in an absolute sense
24 that's probably true because virtually our whole natural
25 world is, you know, contaminated with or is made up of

1 radioactive material.

2 But in a true sense, what we're really talking
3 about -- what I'm troubled with is the concept of how do you
4 just sort what is safe or clean or releasable from what is
5 not. Most of the material that you're talking about may go
6 in and out of a facility and not pick up additional
7 radioactivity, but you have to have a standard to gauge that
8 by, one that's practical and implementable. And I haven't
9 heard that part of the discussion.

10 So, the truth is the bulk of the material that
11 we're actually evaluating is not contaminated by that
12 facility.

13 MR. CAMERON: Thanks, Paul. Trish, do you have
14 any comments on that or perhaps some of the other NRC staff
15 could talk about how we have contemplated that particular
16 issue?

17 MS. HOLAHAN: Yeah, let me start, at least, as no,
18 I think that's a very good point and I had, perhaps, I
19 didn't say it as clearly as I would like to. But you're
20 right, there is material that we would perceive as having no
21 radioactivity, and I think that's an excellent question as
22 to how do you distinguish between what may not be
23 contaminated or have residual radioactivity versus that
24 material that has very small amounts.

25 MR. CAMERON: Anybody else want to address that?

1 Yeah, Bob Nelson.

2 MR. NELSON: Bob Nelson with the NRC. Actually, I
3 think you've touched on two points. One is an alternative,
4 or what alternatives should be considered in the rule
5 making. How do you -- where do you start with the process,
6 what materials should be considered. And then an
7 implementation issue is how you measure it, how you clear
8 it. I think we'll get to both of those in later portions of
9 this discussion. We'll certainly be talking about
10 alternatives starting later today, and implementation issues
11 tomorrow. But for now, it's a good idea to have it on the
12 paddock.

13 MR. CAMERON: Thank you. And we'll note issues
14 like this up here so that we can make sure that we get back
15 to them. I'm going to go over to Ray and then we'll come
16 back over to Bill. Ray?

17 MR. TURNER: Chip, I think it will be important,
18 as we progress, particularly in the area of addressing
19 materials that are radiologically enhanced or contaminated,
20 to understand the recycling process, both the secondary
21 process as well as the eventual melting, what happens to the
22 radioactive contamination, be it surface or volumetric
23 contamination, and how that effects the downstream
24 byproducts and wastes in the scrap and the steal industry.

25 MR. CAMERON: Okay. Thank you very much, Ray.

1 Any comment on -- pardon me? Oh, yeah, excuse me. For
2 Nancy's benefit, if you could just --

3 MR. TURNER: Ray Turner.

4 MR. CAMERON: Ray Turner. All right. Thanks,
5 Nancy. And Nancy may eventually be able to identify who it
6 is, but if you could just give your name when you speak.

7 Any comment on Ray's process issue at this point?

8 All right. Let's pick up with Bill Kennedy right
9 here.

10 MR. KENNEDY: Bill Kennedy, representing Health
11 Physics Society. I think there are a couple of quick
12 things. When you talk about how things are done on a
13 case-by-case basis, and we look at this issue of the
14 distinction between rad materials and non-rad materials,
15 some years ago I kind of coined a phrase. I said that
16 because it was on a case-by-case basis and that the
17 judgement of technicians doing surveys, we ended up with
18 what I call the de facto de minimis based on detectability.
19 And the problem with that is it's not perceived as
20 consistent from case to case, because of the variability of
21 the radio nuclide composition and the ability of monitors to
22 detect various levels. And so I think that is a key issue
23 that any progress in this area needs to resolve.

24 Secondly, you said that there exists no national
25 standards, and I'm going to sound like a broken record in

1 that the ANSI standard was in fact issued in August, and it
2 does deal with these kinds of issues and provide screening
3 levels for determining what is and is not able to be cleared
4 under that standard. Thank you.

5 MR. CAMERON: Okay. Thank you, Bill. And
6 something that may be informative for all of us, relative to
7 what Ray was talking about, is the people who are in this
8 business, it might be informative for all of us at some
9 point to hear how this process that you brought up works.
10 So, let's -- I see a lot of affirmation about that. Let's
11 figure out how we can build that description into the
12 agenda. And thank you, Ray, for volunteering for that.
13 Okay.

14 All right. Debra.

15 MS. MCBAUGH: Debra McBaugh, Department of Health,
16 Washington. I just wanted to get back to the actual -- the
17 question here. The technical issues are things we're going
18 to be working on a lot. But I am a little concerned, and I
19 don't really have any suggestions for additional approaches,
20 but I would like other input from people here to see. It
21 seems to me that it's going to be one of the major questions
22 when we come to do this in our state, releasing material and
23 putting things in landfills, what the public is going to
24 say. And trying to get the input from a lot of different
25 kinds of groups. Because here we have mostly industry

1 people, it seems to me. State people. A lot of us that are
2 more intimately involved in health physics. And we really
3 need that input, because they're going to be the ones in the
4 public that are going to say to us, when we try to put that
5 stuff in the landfill, "We don't understand. We don't like
6 it."

7 So, I guess this question is more important to me,
8 but I don't -- I don't have a ton of information on how to
9 get it.

10 MR. CAMERON: Okay. Thanks, Debra. I think
11 that's a real key issue, and let's try to -- let's to stay
12 on that issue, and then we'll get to other unrelated issues.
13 But let's -- let's stay on that public input issue. Grace,
14 do you have something on that? All right.

15 MS. CHAN: Along those lines, I think most of you
16 folks are in this field, and I am not. This is a whole
17 other world for me, a whole other set of technical terms.
18 And so my guess is that since those of us in the MSW
19 industry are not familiar with you guys, you guys are not
20 that familiar with us. So, we'll be -- it will be very
21 important for us to stay involved.

22 MR. CAMERON: I mean, that's a good point. Not
23 just what I put up there as public input, but also other
24 interests that may be effected by this that are outside of
25 the larger radiation protection community, if I can call it

1 that. I put that up, MSW, for there.

2 So, we're identifying where we need to shift
3 focus, make sure that we focus to get all of the people that
4 effected by this and to get information from them. Terry?

5 MR. CIVIC: Terry Civic, representing AISI. One
6 of the questions here is is there a safe way to re-use or
7 recycle some of these materials. I was wondering if the
8 question or another scenario would be can we -- is there a
9 safe way to re-use or recycle materials based upon
10 composition or types of materials.

11 MR. CAMERON: Okay. What I'm going to do is I'm
12 going to note that up here on the -- the so-called paddock,
13 which is the issue of composition of the material. Is that
14 the best way to -- okay. And I know we're going to get --
15 we're going to get into that, I think, in the presentations
16 that Bob Nelson was talking about there.

17 And let's keep on this issue of public input,
18 other approaches to enhance input. And I think Barbara is
19 going to help me and help you in the process of passing the
20 microphone.

21 And let's go back here to Robert, and then we'll
22 come back up. Robert?

23 MR. HOLDEN: Robert Holden, National Congress of
24 American Indians. And I would -- I know I would appreciate
25 a little dunning down of some of the discussion for me, not

1 having any kind of technical background. And that's true of
2 some of my colleagues, because in tribal governments we have
3 a lot of folks that won't have a significant rad or that
4 much of a scientific background. I mean, even though they
5 do run environmental quality programs, and not to taking
6 away from Heather Westra, who has a significant
7 environmental quality.

8 But -- but I guess this also goes to the public
9 input. I mean, tribes are not -- we were though we're
10 grouped in part of the public, we're not public, per se. As
11 state governments, you know, we are governmental entities
12 and have that status, and you couple that with the trust
13 responsibility that the Nuclear Regulatory Commission has
14 under treaties and statutes to provide the best ways to get
15 notice and information to those tribal governments and then
16 have them deliberate and respond, there are some tribal
17 governments that will need a little more time, and it's
18 going to take some effort from NRC to ensure that their
19 thoughts and desires and comments are, you know,
20 communicated to the NRC.

21 And I know Chip, knowing him personally over the
22 years, that he has made a significant desire to try to
23 incorporate tribal input into this process, and I guess I'm,
24 you know, I guess I'm the alternative. But I do appreciate
25 that effort.

1 MR. CAMERON: Thank you very much, Robert.
2 Heather, did you have anything to add while we were back
3 there?

4 MS. WESTRA: Okay. Sure. Why not.

5 MR. CAMERON: And then we'll come back up to
6 Debra.

7 MS. WESTRA: Just to add to what Debra -- Heather
8 Westra, Prairie Island Indian Community. I'm concerned that
9 I don't see anybody really representing the public here, and
10 I'm wondering if the NRC plans to actually go out to
11 communities and discuss this rule making and the potential
12 concerns and issues that might arise from it?

13 I've been to a lot of public meetings, and it's
14 been my experience that the public, per se, doesn't show up
15 until it's already after the fact or if it's a burning
16 issue. So, I think it's really key to try to get the public
17 involvement before something happens. But how do you do
18 that, is the question.

19 MR. CAMERON: You're suggesting -- and let me --
20 let me note, first of all, that all of these ideas are going
21 to be grist for the NRC's mill to consider. All of these
22 ideas are going to be considered.

23 Let me just -- before we go to Debra, let me just
24 find out from Don whether -- just some thoughts about
25 Heather's suggestion that we besides regional, national

1 types of meetings, that we do some work in selected
2 individual communities, which is sort of a -- it's a great
3 idea. Sort of a daunting process to figure out how to do
4 that, unless you couple it with when the NRC is out there
5 for another reason, perhaps. But Don?

6 MR. COOL: Thank you, Chip. Don Cool. I'd like
7 to explore this further, and we can either do it on the
8 transcript of we can do it separately with individuals. I
9 think that there certainly could be opportunities where we
10 could come out. Certainly we couldn't necessarily bring a
11 large number of folks, but have a person or a couple of
12 people come out to an area, up to the Prairie Island area or
13 other locations to talk about the issues, hear what's going
14 on, try to be able to answer questions and get that -- get
15 that kind of feedback.

16 So, let's either now or during one of the breaks
17 we can explore a little bit more about the kinds of areas
18 that you may be in, whether you would like to do something
19 like that, and what kinds of arrangements might be able to
20 be set up.

21 MR. CAMERON: Okay. Thank you. And I'll note
22 that here. Going into communities, either by request,
23 perhaps when the NRC is out there on another issues, to tie
24 this issue onto it. And there may be others that develop
25 through conversations between the -- between all of you over

1 the next two days.

2 But let me ask, does anybody have anything to add
3 to Heather's point about the community issue? Rob? Oops.

4 MS. MCBAUGH: And actually, I had something to add
5 to that, if I could.

6 MR. CAMERON: Good. Debra and then we'll go back
7 to Rob.

8 MS. MCBAUGH: That made me think that there might
9 be a reason -- a way that you could use either the
10 organization over agreement states or CRCPD to be helping in
11 that. Because all of us, all of the states care very deeply
12 about what happens with this, and that might be a way that
13 we could tie to more local communities. So, I know we've
14 done that in other areas, so it's something we might think
15 about.

16 And the other group -- I'll just through out and
17 then it can go back -- is ASTSWMO, which is the Association
18 of State and Territorial Solid Waste Management Officers,
19 and they deal with a lot of this. I know they have some
20 committees that deal with radiation as well, because we have
21 gone in there and talked with them about clean up, because
22 some of it can go to landfills. So, it's something you
23 might want to make a connection with to get more input.

24 MR. CAMERON: Okay. And I think, grace, that's
25 your particular community, isn't it?

1 MS. CHAN: It's a different organization. Both of
2 them, though, have -- my agency that I work for is a public
3 operator and we represent member cities in Los Angeles
4 County. So, while we are not thought of, perhaps, as the
5 public, we certainly deal with them and are accountable to
6 them.

7 MR. CAMERON: Okay. Thank you very much. And I
8 just want to note, before we go on, Debra's point about
9 perhaps we use the agreement state CRCPD community, somehow
10 to assist us in getting broader outreach on this particular
11 issue.

12 MR. LOWE: Bob Lowe, Society of Nuclear Medicine,
13 American College of Nuclear Physicians, Southwestern
14 Low-Level Radioactive Waste Compact Commission. I know that
15 we've couched this as a highly technical radiation
16 protection health physics issue, and that's how this has
17 been discussed, but the point that I'd like to make is this
18 is clearly something that's directly connected, because the
19 major impact is going to be a nuclear power area, and I
20 don't see any of the nuclear power opponent groups
21 represented here.

22 Eventually you may not want to do it in the
23 beginning while you're developing and discussing the
24 technology and the technical calculation basis of this; but
25 eventually, these are people who aren't going to be impacted

1 but have a desire to impact the outcome of what you're
2 dealing here, and they need to be included if you're going
3 to end up ever taking this process to some conclusion,
4 because eventually the politics will become a major factor
5 in this, in addition to the science that is the focus today.

6 So, I would recommend when you're talking about
7 taking this to the public and getting further input that you
8 have some of the organized groups that you know are
9 opponents of nuclear power who will want to impact this
10 process one way or another be participants in the process,
11 because if you don't get their participation, eventually
12 you're going to run into a major stumbling block, in my
13 opinion.

14 MR. CAMERON: And I think that that's a -- I think
15 that we realize that that is a sound point that you're
16 raising, and I'm going to ask Barbara, who has done a lot of
17 the work for us in terms of talking to the citizen group and
18 environmental community, to just say a few words about what
19 our efforts have been there. And I don't want to loose
20 sight of the important issue of how do we try to get that
21 community more involved in this. Thank you, Rob. Barbara?

22 BARBARA: I'll just say a couple of words.
23 Meridian Institute has been involved in talking with many
24 stakeholders in advance of these meetings to try to help
25 shape the agenda, but also to solicit their interest and

1 find out more about what their concerns are regarding this
2 particular issue.

3 And so let me say first of all that the net -- the
4 net has been cast very broadly. We have had discussions and
5 there's been information put out to ASTSWMO and many, many
6 other organizations in this -- not only in the solid waste
7 management area, but citizen and public interest groups
8 around the country. And I'd say there's basically two
9 issues that have come up that point to why people are not
10 here at this meeting.

11 One is they may not feel that this issue has high
12 enough priority at this point to be worth their -- the
13 travel and expense, et cetera, considering all the other --
14 the, you know, lack of resources and the tremendous number
15 of other issues that are on their plate. So, it's not that
16 they are not concerned about the issues, it's just a matter
17 of priorities at the immediate moment.

18 So, I think personally, and with Meridian's
19 interest in trying to convene as broad a group of
20 stakeholders as possible, it would be very helpful for some
21 of you all to talk to your colleagues after this meeting.
22 The most relevant folks that you can think of that aren't
23 here but should be involved, and get the word out to them
24 about the progress and the process that's anticipated here,
25 I think that will help a lot for subsequent meetings.

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1 The second area of concern is some folks in the
2 public interests, citizen environmental community in
3 particular, have some concerns about the way the issues are
4 framed, and the shape of the discussions and the potential
5 direction the NRC is heading. And so they are, to put it
6 mildly, contemplating what -- how they would like to
7 participate and, you know, what role they should play in
8 this process. And so that's just an ongoing set of
9 discussions, and, you know, they've elected not to be
10 present for these -- for this particular meeting and perhaps
11 future meetings. And maybe there is a role that many of you
12 all could play in assisting with that problem and helping
13 other folks understand why it might be worthwhile for them
14 to be involved early on in the process.

15 MR. CAMERON: Okay. And Mike, we might want to
16 put Barbara's suggestion, actually, for the participants
17 here to talk to people in the effected interests that they
18 think should be here to see if they can get them to
19 participate in the process or find out what might need to be
20 changed.

21 John, you have a comment on this very point, I
22 think.

23 MR. KARNAK: Yes, as I mentioned when I introduced
24 myself, EPA has been involved and interested in this area
25 for a couple of years now. In 1997 we published a series of

1 technical reports describing scenarios that a piece of metal
2 would go through, and how it might effect the general
3 public, as well as workers who were not radiation workers
4 who would be effected by this, such as folks in the scrap
5 yards or steel mills. We published those in the fall of
6 1997, and several of the environmental groups caught on to
7 it and put sample letters on their web sites, and I
8 personally answered over 250 letters, many of which said,
9 "Isolate us from all radiation."

10 I started looking at that issue because it kind of
11 intrigued me. We sent back answers with some of the
12 information that we have at EPA. One of them is about a
13 four-page pamphlet that says -- that's titled, "Radiation:
14 Risk and Reality," to try to show folks that there is
15 radiation in the world around us, and that's a fact of life.
16 That's physics. That's what we deal with.

17 There is a perception and, you know, I kind of got
18 on the issue of perception versus reality. There is a
19 perception that radiation is harmful. Period. And I tried
20 to look back at that over the years and, you know, through
21 the '50s, people liked radiation. They thought we were
22 going to have power too cheap to regulate and things like
23 that. You've seen the articles possibly. And somehow
24 around 1960 thereabouts we lost the public's confidence, and
25 I'm not sure how we can restore that. We had it. I mean,

1 it's pretty obvious, if you look back at some of the old
2 Scientific American articles and the National Geographic
3 articles back in the time frame, but somehow we lost it.
4 And the public just doesn't believe that there is a safe
5 level of radiation.

6 And I can't tell you how we're going to address
7 that. From the EPA standpoint we've tried to put out some
8 basic information, and as I said, we sent out over 250
9 letters with some of this basic information about radiation
10 and how it exists in our society. That's, you know, in my
11 personal opinion, the first issue we have to address, and I
12 have no idea how we're going to do it.

13 MR. CAMERON: Thank you, John, and I -- I -- that
14 ties in with the issue that was raised before about this
15 information needs to be understandable, and you're raising
16 the whole risk communication issue, which is obviously a
17 larger problem but very central to this particular issue.
18 So, let's see if we can get some more discussion on that.

19 Robert, I know that you have -- this is Robert
20 Holden.

21 MR. HOLDEN: Robert -- excuse me. Robert Holden,
22 NCAI. Hoping not to sound tit-for-tat, but I guess, you
23 know, these perceptions are -- they're more than
24 perceptions. Working with tribal governments whose lands
25 were impacted many years ago at the advent of the nuclear

1 age, giving up a lot of their cultural sites, homelands for
2 research and development of nuclear weapons in the name of
3 national security, which lands were supposed to be returned
4 to them as soon as this threat was over, and not having
5 those lands returned to them.

6 But more so, having those lands contaminated, the
7 mining, the milling, and the health of the safety of those
8 workers. Not only the workers who were in those minds and
9 in those areas, but their families who still have
10 generations of problems that developed from gene breakage
11 who will never be the same. That's difficult to explain to
12 people as to safe levels of radiation when they were --
13 they've been impacted by this from the past and they're
14 still impacted today and there are sites on tribal lands
15 that are out there not being taken care of, that are blowing
16 in the wind, that are still getting into the ground water.
17 And so it's more than perception from the tribal evidence.

18 MR. CAMERON: John, you may want to follow. Go
19 ahead.

20 MR. KARNAK: Excuse me, please. I didn't mean to
21 suggest that all radiation was a perception, what I meant to
22 suggest was that there are indeed realities, and you've very
23 well documented some of -- mentioned some of those.

24 The perception that I'm suggesting is there are
25 folks that say they want to be isolated from all radiation,

1 and it's just physically impossible. And that's the
2 perception versus reality that I was suggesting, not the
3 fact that there was -- that we were suggesting that some of
4 the real effects were perception.

5 MR. CAMERON: Okay. Before we go let's go over to
6 Heather on this, and we were talking about
7 perception/reality, but in order to try and address those --
8 and thank you, Robert, for bringing us back to that one very
9 specific reality; but before we can start to deal with
10 communication and understandability, we have to get people
11 involved.

12 So, let's -- let's keep our mind on the question
13 too of what can NRC do in this process just as an enhanced
14 process? What other specific enhancements can we do to
15 bring in the all of the very necessary interests that we
16 need to have involved in this process? Heather?

17 MS. HOLAHAN: Well, I think that perception and
18 lack of confidence are related, because I think a lot has
19 gone on at power plants at other sights and the public finds
20 out about it afterwards. I know the tribe I work for -- I
21 work for -- was impacted by a few incidents and found out
22 about it after the fact.

23 So, I think that goes a long way towards eroding
24 public confidence in what is actually happening in how these
25 facilities are regulated.

1 You know, I know a lot about how the plants are
2 regulated, but people still have the perception that power
3 plants are self-regulated and that it's the fox guarding the
4 henhouse, and I think you have to understand that that's --
5 that's how people think and what they believe, so that if
6 you get people involved in the process early on, you know,
7 that may go a long way towards restoring some of the
8 confidence that the public has that NRC or EPA or any other
9 regulator can protect health and safety.

10 MR. CAMERON: So, maybe instead of the sort of
11 designing a process that's going to move forward on its own
12 steam and then saying to the public groups, "Well, you've
13 got to jump onto this train," just maybe slow the train down
14 a little bit and get them on the train before it leaves the
15 station. Is that accurate?

16 MS. HOLAHAN: That's a good analogy. Yeah.

17 MR. CAMERON: All right. Okay. Thanks, Heather.
18 Let's go to Scott over here. We'll go to Scott Peterson and
19 then we'll come up to Jaz, okay? All right.

20 MR. PETERSON: Thank you. I'm Scott Peterson with
21 NEI. And getting back to the idea of communicating this to
22 the public, if you just listen to the discussion we've had
23 here in the last couple of minutes, we've gone from nuclear
24 weapons to a whole gamut of uses of radiation. And we've
25 done a little bit of work on this issue, and the public in

1 terms of how to communicate this and how to explain this
2 particular issue, and I think you have to frame it in a way
3 where you come back and you narrow down to the level of
4 radioactivity that we're discussing on this issue. Because
5 once you get into discussions of weapons and of other
6 applications of nuclear materials, you've lost, because
7 that's not where we are at.

8 We're talking about a level of radioactivity that
9 is very, very small. And one of the things that we try to
10 do is put that in perspective to members of the public who
11 generally have a very low level of knowledge about things
12 nuclear. I mean, that's a reality. And so what we try to
13 do is give them a chart listing the various levels of
14 radiation, whether it's natural background, whether it's
15 accepted dose to those folks who work in nuclear facilities,
16 or whether it's the radiation they get in x-rays, cost to
17 cost flights, and EPS standards for air, groundwater. And
18 then show them what level we're talking about here, whether
19 it's some range between three and 10 millirem or what
20 exactly it is you're talking about. But I think there has
21 to be a frame of reference so that the public that's dealing
22 or trying to understand this issue knows that it's a very,
23 very small level of radioactivity that we're talking about,
24 and it's not anything that is connected with weapons.

25 MR. CAMERON: Thanks, Scott. And I think we're

1 going to be coming back to that issue again and again of
2 context. We have a couple people who I think want to
3 address that, but let's go to Jaz, first, and then we'll go
4 to Roy Brown and come back up to John.

5 MR. DEVGUN: I have two quick comments. Jaz
6 Devgun, American Nuclear Society.

7 I feel this action is focussed on public input,
8 but one thing I wanted to point out, that while the release
9 of solid materials this rule making is going to cover
10 globally operating situations, operating and -- the
11 decommission -- decommissioning projects and other
12 materials. But at least I can say from a decommissioning
13 projects point of view, it is the reason that why they vote.
14 You know, at the site specific advisory board. So, they can
15 be one vehicle for you, even in advance funneling this
16 information.

17 So, you are actually covering those people, at
18 least that segment of the public. That's the reason that
19 why they vote, served by decommissioning sites. So, that's
20 one group of people you could have the input going to, to
21 address some of the public's concerns I heard so far.

22 MR. CAMERON: Okay.

23 MR. DEVGUN: My second point is related to more
24 like the recycle of metals, it's just more like towards the
25 input, public input view. I'm sure in the later sessions we

1 may cover the technical nuances thereof. But in the
2 European community, for example, they use -- I don't want to
3 have different scientific standard, I want to see one
4 scientifically defensible standard come out. But should
5 there be it or is it more -- I'm sorry, let me rephrase. Is
6 the public more likely to accept recycling of metals as long
7 as it's within the nuclear industry treated differently, as
8 opposed, for instance, released to the general industry.
9 Like, in Europe they try to have a preference to try to
10 recycle it first within the nuclear industry and then
11 release it to the general trade, what we call it. Should we
12 try to investigate that route, too?

13 MR. CAMERON: Thanks, Jaz, and I -- my apologies
14 to Roy and John, but Andy has had his hand up here for a
15 long time, so we'll go over to Andy and then we'll go over
16 to Roy and John. And we are going to get to the issue of
17 restricted use. And Tony, I believe that's -- that's the
18 proper way to characterize Jaz's point. All right.

19 MR. WALLO: Actually, I have a list of a couple of
20 things -- actually, more than a couple of things I'll cover.

21 One is your suggestion on how to get out to the
22 public. I might suggest -- and this is not actually in my
23 realm of responsibilities, so I'm volunteering other DOE
24 people -- but we do have a lot of facility public interest
25 groups around DOE facilities. They are sensitive to these

1 issues. We have regular meetings. And it might be one way
2 for NRC to bring this issue out to folks that have knowledge
3 and concerns in it is to try to coordinate with some of the
4 DOE public meetings and bring it up as an issue at one of
5 our periodic meetings at one or several sites. I'm not
6 sure how that would work, but it's something I think we can
7 talk about to get some broader scope and some interested
8 folks to participate and make suggestions.

9 MR. CAMERON: Any, let me just stop you right --
10 right there, because I think that that is a very important
11 point and it's linked to what Jaz, I think, was
12 recommending, and also what Heather was talking about, about
13 going in to the communities. It suggests a whole other way
14 to approach this, I think, rather than the larger -- in
15 addition to the larger public meetings. Sorry, but that --
16 I think that's good. Go ahead.

17 MR. WALLO: Then the second one, actually, is, you
18 know, we've been through like exercises before. I'm trying
19 to remember. I think the name of the DOE exercise as we
20 began to develop our policies with regard to radiation
21 standards, we had an exercise, I think it was called Recycle
22 2000, where we had a considerable amount of public meetings,
23 and there's information available on that exercise. It's
24 probably five years old now or so. I don't remember the
25 exact time. But it may be beneficial to the Commission to

1 take a look back, if you haven't already, to the results
2 from those public meetings and the feedback we got at the
3 department. Again, we were talking about department issues,
4 but many of the issues are the same. And I think some of
5 that exercise might benefit this effort. And so some
6 sharing of that.

7 I did want to say that I agreed with the NEI
8 gentleman that made the statement that we need to recognize
9 that we have graded levels of material we're talking about.
10 Robert Holden's comments about contaminated sites and high
11 levels are truly high levels, talking about dealing with
12 materials that are hundreds of curies and lots and lots of
13 radioactive material and relatively high exposures in some
14 of those cases. We're talking here about fractions of
15 millicuries. Very small doses. And we need to sometimes
16 differentiate between contaminated material and material
17 that's clean or decontaminated. There is some benefit to
18 decontamination in that it gets things down to very low
19 levels.

20 And the final thing is kind of off the public
21 comment, but the initial comment from Mr. Goodwin, is it?
22 Genoa. I'm sorry, Paul. Regarding the fact that things are
23 cleared every day now. We need to recognize that any
24 facility operating with radioactive material, even
25 facilities that operate with naturally recurring radioactive

1 material, are clearing things and people every day. When a
2 person walks into the work place and leaves the work place,
3 that person is cleared each day. When they drive their car
4 on and off they are cleared to leave the facility. When the
5 NRC inspector comes in, inspects the facility and walks off,
6 that NCR inspector has been cleared to leave, and all the
7 things he or she brought on have been released from the
8 facility.

9 So, this is not some small, unique issue that we
10 haven't experienced before. It's happening every day at
11 both nuclear facilities and non-nuclear facilities that do
12 deal with naturally occurring materials.

13 MR. CAMERON: Okay. Thank you very much, Andy.
14 Let's go to Roy Brown.

15 MR. BROWN: Roy Brown, the Council on
16 Radionuclearizer Radiopharmaceuticals. My comments go back
17 probably 10 or 15 minutes ago. It just takes a while for
18 the microphone to come around. But we started to get into a
19 discussion of some of the dark sides of the nuclear
20 industry, and I'd just like to talk about the benefits just
21 for a second so we keep -- keep focussed and keep this in
22 mind. But there are tremendous benefits to society of
23 nuclear technology. There are quite a few things that are
24 done to improve the quality of life. Radionuclearizer used
25 in medicine for the early protection of cancer. Heart

1 disease for the treatment of cancer and other maladies. So,
2 there's tremendous benefits to society of nuclear
3 technology. Biomedical research. Research with AIDS.
4 Agricultural developments. So, we need to stay focussed and
5 realize that there are quite a few benefits associated with
6 the use of radioactive materials. Of course, there are some
7 dark sides that we started to get into earlier, but the
8 benefits to society, I think it's important to remember
9 those when we develop these standards.

10 MR. CAMERON: Okay. Thanks, Roy. I think that
11 fits in with a lot that's been said in terms of context and
12 perspective and making sure all of that is laid out very
13 clearly.

14 John, I know you reacted to something that was
15 said a little while ago, so.

16 MR. KARNAK: Yeah, this is not an EPA meeting, by
17 the way, folks. The point I wanted to make was -- oh, you
18 thought it was? No, we had our turn.

19 The public doesn't necessarily believe us when we
20 say the material we're going to release is very low amounts
21 of radiation. I mean, they pick up the paper and, you know,
22 Andy is sitting at the other end of the table there, Paducha
23 has made the front page of the Washington Post about three
24 or four times in the last month, and talked about material
25 that might have been released. There's gold jewelry made

1 from radium needles. Half of the scrap yards in the United
2 States have radiation detectors, not because they think
3 they're nice trinkets but because they've had sources that
4 got out of control or other things. And the fact that we've
5 made a lot of mistakes, to try to tell the public now that
6 this time we're not going to make a mistake, it's a little
7 hard for them to believe.

8 MR. CAMERON: Bill, do you have a follow up to
9 that particular one? Great. Good.

10 MR. KENNEDY: I think the -- Bill Kennedy, Health
11 Physics Society. I think one of the key themes here in the
12 last couple of comments tracks back to what I said about de
13 facto de minimis. And perhaps part of it is building
14 credibility for what you're trying to do here. And saying
15 that the current situation allows ad hoc decisions to be
16 made on a case-by-case basis and is fine its context, but
17 for credibility, you need a system that goes across the
18 board, that tries to minimize the potential for problems or
19 for failure of the system that would result in additional
20 lost sources of materials that can't be accounted for.

21 So, perhaps a theme of building credibility of
22 evaluating this as a regulatory area can be an important
23 theme to build public confidence as you proceed.

24 MR. CAMERON: Okay. Thanks, Bill, for bringing us
25 back to a central issue that we're here to discuss today,

1 and how that contributes to -- to public confidence and
2 credibility.

3 And let's -- before we go to Bob Meck of the NRC
4 staff, let's go back to Brian, Corps of Engineers, and let
5 our guests talk.

6 MR. HEARTY: I just have a -- this is Brian
7 Hearty, Corps of Engineers. I have a couple comments based
8 on what John and Bill Kennedy were just talking about.
9 Specifically, to have an overall across the board regulation
10 is going to be hard when at the scrap metal recyclers almost
11 everything that's setting them off is pipe scale or
12 naturally occurring radioactive materials that are outside
13 of the scope of this proposed possible NRC rule making. And
14 I'm just wondering if that's a discussion that needs to be
15 brought up sometime.

16 MR. CAMERON: We're going to put that onto the
17 paddock, the whole issue of non-Atomic Energy Act material.
18 I know that Ed and Debra will have a lot to say about that
19 particular issue. Let's put that up here to revisit under
20 non-AEA material.

21 And I know we're running a little bit over on this
22 discussion, but this discussion is of fundamental importance
23 to the NRC about how to involve everybody who should be
24 involved on this particular issue, and how to do that. So,
25 we really appreciate the comments that are -- that are being

1 made.

2 MR. MECK: Bob Meck, NRC. I'm asking for some
3 clarification and some elaboration and perhaps some
4 brainstorming in relating back to Trish's presentation and
5 some comments earlier about the process itself that we're
6 going through here today.

7 Some of the comments said, well, it seems like
8 typically we -- I get notified that the train has left the
9 station when the NRC is starting an action. And in terms of
10 process, can we do some brainstorming or can we get some
11 elaboration on what kinds of things can we do in addition to
12 these workshops which I can safe -- that some of us perceive
13 as early involvement and solicitation of the input. What
14 else could we do so that it wouldn't seem like we have been
15 too far down the tracks before we got other people involved?

16 MR. CAMERON: Okay. Thanks, Bob. I think we've
17 been addressing a lot of different issues, including that
18 one. And let's get back to Paul for a follow up to Bob,
19 perhaps.

20 MR. GENOA: Yes. Paul Genoa, NEI. And in looking
21 at this, I mean, I realize when we -- when we try to notify
22 the public, the typical agency and other agencies use this,
23 federal government uses the Federal Register.
24 Unfortunately, the public doesn't read the Federal Register.
25 The public reads TV or they listen to the radio. Other

1 public entities get free time on the radio or on TV for, you
2 know, public good and messages. Is it possible to explore
3 opportunities to essentially advertise these activities in
4 some fashion that will actually reach the public in a very
5 timely way?

6 MR. CAMERON: Okay. Thank you. Thank you, Paul.
7 And I think the NRC can explore with the Office of Public
8 Affairs how to -- to perhaps best do that.

9 It's about 10:15 now. Do we have any final --
10 let's take some final comments on -- on this issue, and
11 let's take a break and we'll come back for the next
12 presentation.

13 Anybody else have something to offer? We've
14 surfaced a lot of good ideas that I think we need to put a
15 finer point on to implement, but there are a lot of great
16 ideas. I see Ray had something and then Andy and then let's
17 take a break. Ray?

18 MR. TURNER: I understand we're going to revisit
19 some of the non-AEA material issues later. Being also
20 probably the largest recycler in Europe, it's probably going
21 to be important here to understand that not only in the US,
22 but in Europe, almost all of the recyclers in some cases are
23 being required to install some of the supersensitive
24 radiation detection equipment. And in Europe I know that
25 they're turning away shipments whenever they ring the bell

1 now, just like they are in the US.

2 Part of the problem is twofold, really. Number
3 one, the systems that are installed don't identify the
4 material. The only thing they do is say, "Okay. You have
5 gamma rays coming out of this load and it's setting off my
6 detectors."

7 Number two is a probability that if it sets off
8 their detectors it will also set off the detector in the US,
9 which will subsequently cause a rejection of that shipment
10 and have to possibly even go back to Europe. So, it's going
11 to be important -- these proceedings are going to be
12 important not just to the US but to Europe as well, because
13 we will -- just my company alone will import and export
14 millions of tons just over the next year to and from Europe.

15 MR. WALLO: Andy Wallo, DOE. Just --

16 MR. CAMERON: Ray's point. International
17 implications, ramifications. We'll be getting into those
18 things. Thank you for that. Let's do a comment from Andy
19 and then a final one from Mark and then we'll shut down for
20 a break. Go ahead, Andy.

21 MR. WALLO: I just wanted to comment on John's
22 comment with regard to sources and the detectors. I think
23 that's one of the things that we have to keep in mind when
24 we said we're looking at this graded level. The levels, for
25 instance, since '90, when we issued our standards and

1 required the surveys, the levels and the surveys done to
2 meet a standard would ensure that material that's certified
3 meeting an authorized limit doesn't have a source in it, and
4 it doesn't have these levels that these special detectors
5 are set up to look for. These levels are truly low.

6 So, despite the problems -- and I agree there are
7 credibility issues here -- the fact is, implementing a
8 standard has secondary effects of ensuring that you catch or
9 find any of these sources that aren't part of the residual
10 radioactive material, authorized limits or standards.

11 MR. CAMERON: Thanks, Andy. Okay. Let's take one
12 last comment here from Mark and then we'll take a break.

13 MR. CARVER: Mark Carver. I work for Entergy.
14 Just a perspective on being a member of the general public,
15 but yesterday we made some discussions about this, and Paul
16 has brought up a point that we discussed, the one thing that
17 wasn't discussed was the timing of the meeting. The general
18 public doesn't always get to come out Monday through Friday,
19 8:00 to 5:00. Do you think evening sessions or maybe even
20 weekend sessions to couple with the community meetings or
21 any of the other things that have been discussed here would
22 be of benefit? That's just a general thing because if I
23 were a member of general public and this got advertised on
24 TV I'd have to take off from my job and I might not be able
25 to do that.

1 MR. CAMERON: Okay. Thanks a lot, Mark, for
2 underlining that point of accessibility. And thank you all
3 for the suggestions. We already have some issues to come
4 back to here, including perhaps a short sort of presentation
5 from someone in the real world about what this is all --
6 this process is all about.

7 So, let's break. And I'm not sure my watch is
8 exactly correct, but why don't we take about 20 minutes,
9 okay. Get some coffee and fresh air or whatever. But thank
10 you.

11 (Recess.)

12 MR. CAMERON: Okay. I think we're ready to start
13 now. And this particular session is designed to talk about
14 some of the issues that we've already been talking about.
15 What is the nature of the problem. What's being done about
16 this in this country, worldwide. A number of the issues
17 that have been raised. But we want to have a -- really
18 focus our discussion on that. And Trish Holahan is going to
19 help us out again by setting the issue up for us, and I'll
20 just turn it over to her now. Trish.

21 MS. HOLAHAN: Okay. Thanks, Chip.

22 Well, as Chip mentioned, I think sort of some of
23 the discussions that we've had in the last hour or so have
24 led in to this next issue very, very well and have lent
25 themselves to further discussion, and so that's great.

1 And so on the next line is one of the things --
2 and we've heard this from a number of folks -- is what types
3 of solid materials and what NRC licensees are we talking
4 about.

5 Currently, NRC is considering looking at metals,
6 concrete and soils, and that would include equipment, piping
7 and furniture. And these are -- are those materials that
8 are currently present at and are used in licensed
9 facilities. Again, we've had some discussion as to whether
10 or not that a lot of that material may have no
11 contamination, but that there is some that may be
12 contaminated. And there may be other materials that we'd
13 like to develop through this discussion. What else should
14 we be looking at. I think there was some discussion as to
15 should it be for certain types of materials.

16 Again, as I said, most of the materials will have
17 no radioactivity, other material will be contaminated on the
18 surface, and then other material will have radioactivity
19 distributed throughout the entire volume.

20 The amount of radioactivity is going to depend on
21 the materials location or use and the licensee type. Now,
22 most of NRC's licensees are users of sealed sources, and in
23 this case the radioactive material is encapsulated and,
24 therefore, the material that's at the licensee's facility
25 will have virtually no contamination or residual

1 radioactivity. This will include small research and
2 development facilities and industrial users such as -- as
3 gauges and many big firms and radiography.

4 For other types of licensees, such as the power
5 reactors or non-power reactors, research laboratories and
6 hospitals, manufacturing facilities, generally falls into
7 three categories.

8 First of all, there will be those areas that have
9 no contamination. These would be clean or unaffected areas
10 of a facility where the equipment is stored in clean
11 warehouses, in hospital waiting rooms where you'd have
12 chairs that, for example. University office space that may
13 or may not be in a laboratory. Metal ventilation ducts that
14 are in control rooms would have no residual radioactivity.

15 There are also areas that would have very --
16 process or storage areas that may have materials with small
17 amounts of radioactivity. And again, this is the focus of
18 what we're talking about today. The radioactivity is low
19 because of procedures that the licensee would have in place,
20 and it would include certain lab areas, certain reactor
21 buildings.

22 The third category -- and I don't have it up on
23 the slide -- would be the material used for radioactive
24 service or in areas where activation can occur. And in
25 general, those are materials that would be going off to

1 licensed disposal sites, either higher or lower level
2 disposal sites.

3 Again, a topic that we've discussed a little bit
4 previously is what is the potential radiation dose that
5 we're talking about, and how does it compare contextually to
6 other radiation sources around us.

7 One of the alternatives -- and we'll get into more
8 discussion of the different alternatives that we are
9 considering a little bit later today -- discusses a
10 potential dose criteria of .11 or 10 millirems per year
11 above background or no dose above background. In terms of
12 trying to compare that and put that in perspective with
13 others, the average US natural background, a number of folks
14 have said we're in a -- I think I heard "sea of radiation
15 surrounding us," is on average about 300 millirem per year.
16 Now, that varies from about 100 to 1,000. It depends on
17 where you live, what type of house you live in, and things
18 like that.

19 In addition, the public dose limit that limits the
20 amount of radiation that the public receives from licensed
21 activities is only -- is 100 millirem per year, and that's
22 in our Part 20 regulations.

23 A diagnostic x-ray is on the order of 40 millirem.
24 And again, that's a wide range, depending on the type of
25 x-ray you're having. But again, this is a medical

1 procedure.

2 A round trip coast-to-coast flight is on the order
3 of five to 10 millirem for a full round trip flight.

4 And also, the dose from the use of polish being
5 recycled into concrete blocks can give a dose on the order
6 of 10 millirem per year.

7 In addition, the National Council of Radiation
8 Protection and Measurements, the NCRP, has looked into this
9 issue in terms of doses and considers that one millirem per
10 year is a negligible individual dose, as a term that they're
11 looking at in terms of risk. And this is also consistent
12 with the international community, which has established one
13 millirem per year as a criterion for exemptions and for
14 release of limited quantities of material.

15 And this now leads me into what are other
16 countries and agencies and states doing with regard to
17 control of solid materials. We talked a little bit this
18 morning about EPA and that EPA sets generally applicable
19 radiation standards and that they are not considering rule
20 making in this area at this time, although as John
21 mentioned, EPA has completed and published some technical
22 studies on the recycling of materials. And EPA is currently
23 working with the International Atomic Energy Agency, IAEA,
24 the Department of State, and other federal agencies, on the
25 development of guidelines for controlling import and export

1 of contaminated materials or products. Throughout this is
2 NRC and EPA have coordinated and are continuing to work
3 together on their efforts in this area.

4 The Department of Energy, we talked a little bit
5 earlier about that. They also have facilities that are
6 going to be facing similar issues regarding disposition of
7 solid materials, and they have developed criteria for
8 release that's contained in a DOE order that is consistent
9 with existing NRC guidance which we talked about, the
10 guidance that is out there for release of solid materials.

11 On the international front is it's important that
12 there's consistency with standards set by other nations and
13 international agencies. Some of these individual nations as
14 well as the European community as a whole have been working
15 on setting standards. And the consistency aspect is
16 important because of the import-export. We started to get
17 into some of the discussion on that. And if you have
18 differing standards you could create confusion amongst
19 imported material. You could have economic disparities in
20 the international trade community. And the European
21 community has draft standards containing clearance levels
22 for individual radionuclides that correspond to one millirem
23 per year. And they plan to implement those by, currently,
24 May of 2000.

25 In terms of individual states, the states have

1 responsibility for naturally occurring -- all states have
2 responsibility for naturally occurring material, as well as
3 material that is produced in an accelerator; and therefore,
4 they have the authority to approve release of material
5 contaminated or the residual radioactivity that is not
6 regulated by the NRC.

7 In addition, 31 states have entered into an
8 agreement with the NRC and assumed the regulatory authority
9 for the AEA materials. I mentioned the Atomic Energy Act
10 material. So, therefore, they can approve release of this
11 AEA solid material, and in general, they use NRC guidance.
12 Again, it's important to have consistency among state
13 standards that material that is available for use in one
14 state may have been released in another state and through
15 interstate commerce come into the state.

16 In addition, the Energies Policy Act of 1992
17 granted states the authority for disposal of low-level
18 waste, if the NRC exempted such waste. And therefore, some
19 states have prohibitions against disposal of radioactive
20 material in landfills. And therefore this raises another
21 interesting issue that we would need to consider throughout
22 the entire process.

23 At that point I'd like to again open it to the
24 floor and look for thoughts and comments on some of these.

25 MR. CAMERON: Okay. Trish's presentation focussed

1 on the nature of the problem, I think, and that has two
2 aspects. How much is out there, from where, what sort of
3 risk is posed by that. And the second aspect, I think the
4 nature of the problem is the possibility of all the
5 regulatory actors involved, and consistency of standards.
6 And I would suggest that we try to divide our discussion,
7 for efficiency purposes, into those two areas.

8 But before we get into a discussion, let me ask is
9 there anything that Trish talked about that -- that people
10 don't understand, or are there clarifying questions on any
11 of the points she made, particularly because she was talking
12 about what EPA is doing or not doing on the international
13 and national scene? Are there questions on this or perhaps
14 even points of clarification, I suppose, at this point?

15 Okay. Debra.

16 MS. MCBAUGH: Just a simple question. Can you
17 explain the landfill state issue that you brought up just at
18 the very end there? Just give a little more detail on that?

19 MS. HOLAHAN: Okay. I'll do my -- I'll try and --
20 it's basically in 1992 Congress passed the Energy Policy
21 Act, and it gave the states, individual states, certain
22 authority. And so that they can prohibit any radioactive
23 material from going into their non-radioactive landfills, if
24 they so choose.

25 MR. CAMERON: And it's --

1 MS. HOLAHAN: Chip.

2 MR. CAMERON: Stew. Stew Treby from our office of
3 general counsel.

4 MR. TREBY: If I could just add to some of what
5 Trish said. Back in 1992, as some of you may remember, the
6 Commission had embarked on something to set a standard that
7 is called below regulatory control. And this was to set
8 some sort of standard that if the amount of radiation was
9 below that we would not be concerned with regulating it.
10 There was a lot of unhappiness with that below regulatory
11 control. And actually, what it was was really just a policy
12 statement. It wasn't a regulation of any sort. And there
13 was so much discontent with it that Congress, in its 1992
14 legislation, granted the states authority to regulate the
15 disposal of low-level radioactive waste, if the NRC exempted
16 such waste from regulation. Now, that doesn't mean that we
17 couldn't establish some sort of a standard, as we're
18 exploring now, to talk about it. But they were focussing on
19 this subject of granting an overall exemption of our
20 jurisdiction, and in fact, as a result of that legislation
21 we did rescind the policy statement. But nonetheless,
22 states still do have the authority to regulate the disposal
23 of low-level waste. If we should grant such an exemption
24 and, in fact, a number of states have restricted the
25 disposal of radioactive waste into landfills and other such

1 facilities.

2 MR. CAMERON: Okay. Thank you very much, Stew.
3 Debra, does that clear up your question? Debra is saying
4 yes.

5 Are these follow up points on this particular
6 issue in questions -- question -- and a follow up on this --
7 this point? Okay. Bill, we'll be right to you. Paul.

8 MR. GENOA: Yeah. I'll try not to overuse it.
9 Paul Genoa, NEI. And related to that question, it appears
10 that various states have, in fact, enacted legislation that
11 would prohibit radioactive materials from disposal in -- in
12 landfills, municipal landfills. And although we haven't
13 done any sort of a study of this, the concern is that these
14 are -- these measures, this legislation is sort of passed
15 out of political expedience and perhaps doesn't have
16 technical basis and perhaps isn't even possible to
17 implement, because as we all know, virtually everything
18 going into a landfill is, in fact, containing radioactive
19 material. So, I don't really understand how that is -- how
20 it's being actually implemented in the states. I think it's
21 largely being ignored, in fact. So, I think it's important
22 that we evaluate how that is, in fact, being played out.

23 MR. CAMERON: Okay. I want to continue on this
24 issue before we jump to another topic. So, Bill, just be
25 patient, and I think I'm going to go to Robert first on the

1 same issue.

2 MR. HOLDEN: I guess more just for a point of
3 reference from tribes into this aspect of state regulation,
4 and that is a lot of these areas that the states, the
5 agreement states, find to dispose of the low level
6 materials, ironically, are ones -- wind up next to tribal
7 lands. Many of you in California, if you're from this area,
8 are familiar with the Ward Valley situation, where a group
9 of tribes opposed the disposal of low -- of the development
10 of Ward Valley, California as a low-level waste site on the
11 grounds that, you know, to mainstream American culture, I
12 guess, it was in the middle of the desert, but to those
13 folks out there the desert is a living bio-area -- bio
14 resources. And not only that, but the ground water
15 contamination, or the potential, would have been detrimental
16 to many tribes in that area. So, that's the difference of
17 cultures, and that's one of the differences of opinions on
18 this matter, even when it is regulated, highly regulated.

19 MR. CAMERON: Thanks, Robert.

20 MS. CHAN: I just wanted to point out that in
21 California I'm not sure how the MSW landfills in practice
22 screen for radioactive materials, but all of our landfills
23 have devices in the weight scale houses that screen every
24 load that comes through.

25 And one other thing I wanted to note was that not

1 only state requirements need to be considered and how those
2 vary, but also local constraints that get imposed, all the
3 way down to the land use permit level. So.

4 MR. CAMERON: Yeah. Barbara, let's put that up
5 there with the other -- we had state authority, vis-a-vis
6 NRS and tribal authority, vis-a-vis the state, and local
7 government authority, vis-a-vis the -- the NRC or the
8 federal government authority also, and it's relationship to
9 state authority, too. Okay.

10 That's -- and that's all we're focussing on, this
11 nature of the aspect -- of nature of the problem, which are
12 these -- this regulatory framework, some of the glitches or
13 complications in that.

14 Rob, do you have a comment on this whole state
15 issue or -- go ahead.

16 MR. LULL: I think that it's very important that
17 we look at the precise definition of levels. We're using
18 the term "low-level radioactive waste," but we may be
19 describing materials that are below the definition of low-
20 level radioactive waste, as we've seen happen here in the
21 state of California -- and Ed Bailey may be able to add more
22 information about this -- where material that was actually
23 DOE material got transferred to the army, the army ended up
24 disposing of it at a facility that's not designed for low-
25 level waste because the concentrations were actually below

1 the definition concentrations for low-level waste at a
2 facility called Button Willow, which is very close to --
3 much more close to water sources than the proposed Ward
4 Valley site, which is for a higher level low-level
5 radioactive waste by definition.

6 So, I think we need to clarify our definitions.
7 I'd be interested in precisely what the definition in this
8 federal law that was produced in response to the below
9 regulatory concern efforts of the NRC in the past in terms
10 of what are the precise definitions in the federal law,
11 presumably allowing the states to regulate below the low
12 levels that are defined as low-level radioactive waste. So,
13 I think we need to get some very precise definitions in this
14 area here so we know precisely what we're talking about.

15 MR. CAMERON: Okay. Let's -- let's stay on this
16 particular issue, and I would just note that there's a --
17 there's not a whole lot of certainty related to this
18 particular provision in the -- that Stew mentioned and that
19 Trish mentioned, and that even outside that provision,
20 though, there are jurisdictional issues between the federal
21 government and the states.

22 Now, I don't know if I want to get us into the
23 whole FUSRAP deal, though we could have an evening seminar
24 with our Corps of Engineers friends and Ed Bailey on that.
25 But I don't want to ignore an important issue that's

1 relevant to this discussion, but maybe if we could, at some
2 point, go to Ed Bailey for just a short clarification on
3 that. But I don't think that -- we need to think about
4 whether we want to focus on that at this point.

5 But let me ask -- and Don, did you have -- do you
6 want to talk at all? Okay. Thank you. Thank you very much
7 for that. Are there others on the state authority issue?
8 And Debra's shaking her head yes. And Andy and the
9 gentleman in the middle, are we going to keep going on the
10 state authority business? Okay. Let's go to Debra and then
11 we'll go over to that side and we have Stew over here. And
12 let's go with Debra first, and then we'll shift over to that
13 side.

14 MS. MCBAUGH: We've been focussing -- it seems
15 like mostly we're thinking that the local jurisdictions are
16 going to say no to having things go to their landfill. And
17 I just wanted to give an example of where that doesn't
18 always happen in a state.

19 We had a company that was looking to come to our
20 state that uses material -- it's zirconium sands, and most
21 of you are probably familiar with that, and it has thorene
22 in it and can be over the levels, can be exempt, sometimes
23 not. And this was a big company that was looking to come
24 into the state, and the local jurisdiction wanted this
25 company for economic reasons. And they went up to the

1 Governor and made sure that when it came back down to us we
2 made an assessment that showed -- they really wanted us to
3 make it -- make it fine. And actually, it turned out it was
4 fine for them to dispose it into the landfill, but -- but
5 there were other things going on here so that it wasn't just
6 a decision made on some regulation that was on the books,
7 because we didn't have one. It was a case-by-case.

8 And so in this case it would be really good to
9 have something that was on the books, because then we could
10 have applied that. Even though it's non-AEA material, we
11 could have applied it there because we usually use NRC rules
12 for that, and that would have been very helpful instead of
13 we had to go and do a dose assessment of it and -- and it
14 was sort of interesting.

15 MR. CAMERON: Okay. Another example of the nature
16 of the problem in terms of the regulatory framework, the
17 non-AEA material.

18 John Karnak is just going to give us a couple
19 points of information here. I don't want to forget the fact
20 that the -- and an important element of this nature of the
21 problem is, again, what materials other than metals,
22 concretes or soil should be considered in the process?
23 What's the nature of the problem in terms of the material
24 out there that we need to work with? So, let's keep going
25 on this regulatory course, so to speak, and then let's come

1 back and have a discussion on the nature of the problem.

2 Since John is right here and is going to be brief,
3 why don't you tell us about those two things, John?

4 MR. KARNAK: I promised my boss that I would be a
5 fly on the wall at this meeting and not say anything.

6 I want to make -- just mention something that may
7 be of interest to you folks here, and it's the Office of
8 Solid Waste, under RICRA, is opposing a rule that would
9 allow ricra waste with small amounts of radiation to be
10 disposed of in ricra facilities. And this is a proposed
11 rule. And the number, if you want to write it down, is 40
12 CFR 266. And I'm not sure when that's coming out, but it is
13 coming out as a proposed rule, so there are no limits set in
14 it yet, although I'm sure there are some proposed in there.

15 Our office, under the AEA, is looking at a --
16 there's a rule for disposal of radioactive material that may
17 contain some non-radioactive ricra waste, and the number for
18 that is 40 CFR 193. And that one I know I can get you some
19 information on, and I do know the folks that are working on
20 the other one as well. So, if there are -- I don't want to
21 go into any more detail, but I just wanted to make sure that
22 you folks knew about those two.

23 MR. CAMERON: Okay. Thanks, John. And Mike, if
24 you could give the microphone to Ed Bailey, and we'll go to
25 Ed and Andy Wallo and then the gentleman who has joined us

1 and could introduce himself, too. Ed?

2 MR. BAILEY: Now, on the issue of what's low-level
3 waste and what's not, that -- that often causes a lot of
4 problems, because with all due respect to Dr. Lull, once
5 it's licensed material it doesn't become unlicensed unless
6 it goes through some process, and therefore it is low-level
7 waste if it's not something else. And looking at saying --
8 defining some level below which something is not low-level
9 waste I think could be a very beneficial thing to be
10 determined, so that we're not doing it on a case-by-case
11 basis.

12 I think that we -- probably every state has
13 examples of where they have evaluated some material and
14 decided that from a radiation standpoint we don't care about
15 regulating it any more, and there's even in federal and most
16 state regulations a biomedical waste rule, which clearly
17 allows some material to -- it's small amounts of tritium
18 carbon 14 and in some states iodine and so forth, to be
19 disposed of without regard to its radioactivity. And I
20 think that's basically what we're looking for in this, so
21 that we don't have to say that anything that was once
22 licensed has to be low-level waste until it's disposed of.

23 MR. CAMERON: Good. Thank you, Ed. That puts the
24 problem in clear focus, I think, for us. How about Andy
25 Wallo?

1 MR. WALLO: Andy Wallo, DOE. I just wanted to
2 comment on Mr. Genoa's statement that the states probably
3 are largely ignoring that requirement. And we in the
4 department coordinate with the states a lot, and it really
5 is a case by case how the states deal with it, and some are
6 very different.

7 I would note that in the NRC background
8 information you probably cited the wrong principal guidance
9 document that supports the release of material from DOE
10 under 5400.5 or order. It really is November 17th, 1995
11 guidance that we issued that deals with this. And I
12 mentioned that because part of the guidance is when we
13 approve authorized limits for release of property from DOE
14 it's a requirement or policy of the department that we don't
15 release otherwise licensable material. So, we require our
16 facilities to coordinate directly with the states on any
17 authorized limits that are derived under that guidance. So,
18 we do deal directly with the states. And we have had
19 experiences that different states have different problems.
20 As a matter of fact, the regulators have flexibility. They
21 do things different ways. In some states the regulators are
22 bound by actual laws that were passed by their legislative
23 bodies, and as a result they have no flexibility, they just
24 have to implement a law. In other cases they have developed
25 the regulations or are doing it on a case-by-case basis.

1 So, it is a real issue and it is really diverse
2 between the states. And different regulators have different
3 choices and options available to them.

4 MR. CAMERON: And does this -- before we go to the
5 general -- that -- he could pass it, the mic. I guess this
6 all goes to the fact that some type of uniform -- there may
7 be a way to solve this problem through some regulatory
8 action that would establish some sort of consistency, and I
9 guess that's what we're all here to discuss.

10 If you could just introduce us to yourself?

11 MR. THORLEY: Yeah, my name is Craig Thorley. I'm
12 with Envirocare of Utah, and I'm a nice guy. And I just
13 want to -- so I'm sure you'll all want to get to know me.

14 In response to Mr. Genoa's comments, I -- you
15 know, I can echo what Ed and this fellow have said, that it
16 is a real issue with the states. It's not a superfluous
17 situation, because the court is making decisions on some of
18 this newly deregulated waste on where it's going to go based
19 on what the state laws and regulations say that the DOE
20 follows. They've decided not to send it some places because
21 of what the state laws and regulations say. And I can't
22 resist, even though we're not talking about FUSRAP, to tell
23 you that most of the waste that we have taken at Envirocare
24 over the lifetime of the facility has been lower, measured
25 in picocuries per gram, than the waste that went to Button

1 Willow.

2 MR. CAMERON: Okay. Thank you. Just for the
3 record, for those who aren't FUSRAP aficionados, could we
4 just sort of say -- tell people what that acronym is?
5 Perhaps Ed's the -- perhaps the Corps is the best one. They
6 can at least tell us what the acronym is, right? All right.
7 Okay. Brian?

8 MR. HEARTY: This Brian Hearty, Corps of
9 Engineers. FUSRAP is a Formally Utilized Sites Remedial
10 Action Program. It was transferred to the Corps in October
11 of '97 from DOE by an Act of Congress, and basically, we're
12 using our circle clean up authority to remediate these
13 sites, and remove or remediate them for residual radioactive
14 materials.

15 MR. CAMERON: Okay. Thank you. We have one more
16 comment, Stew Treby, on the regulatory nature, the
17 regulatory aspect of nature of the problem. We have Bill
18 Kennedy, who's been waiting with a clarifying question, and
19 then we really have to get into the aspect of nature of the
20 problem of what other types of materials are out there, how
21 much, that whole business. I mean, just how big is this,
22 what is the hazard? So, we'll go to Stew and then we're
23 going to go to Bill and then open it up on the other issue.
24 Stew.

25 MR. TREBY: All right. Well, actually, I think Ed

1 Bailey clarified it in the sense that the issue really was
2 what is low-level waste and what's the definition of
3 low-level waste. Actually, under the NRC regulations,
4 low-level waste is defined more in terms of what it's not
5 than what it is, and what it's not is high level waste,
6 transgionic waste, spent nuclear fuel or byproduct, as
7 defined in 1182, which means it's the waste from processing
8 primarily to remove source material. Anything else is
9 low-level waste. So, as Ed pointed out, if it has been
10 radioactive it is low-level waste.

11 MR. CAMERON: Okay. Bill?

12 MR. KENNEDY: Thank you. Bill Kennedy with Health
13 Physics Society. I think I heard an answer here, but I just
14 wanted to ask a question about clarification of the
15 presentation. I didn't see any mention of mixed waste or
16 materials that would be contaminated both with radioactive
17 materials and with regular substances, and if that was on
18 the screen at all as far as your potential rule making?

19 MR. CAMERON: And keeping in mind with what John
20 put on the table, I think there is an NRC component to that.
21 Trish?

22 MS. HOLAHAN: In terms of what we're dealing with
23 here is we are primarily focusing on material that has small
24 amounts of radioactivity. So. Radioactive waste. We are
25 working with EPA on the mixed waste issue separately. I

1 don't know if that answered your question or not.

2 MR. CAMERON: Paul, you have a comment on mixed
3 waste?

4 MR. GENOA: No, back on the state jurisdiction
5 issue.

6 MR. CAMERON: Okay. Let's have a final comment on
7 that for right now.

8 MR. DEVGUN: Yeah, the mixed waste, I think that
9 is really important issue to deal with because lot of those
10 sites where we're going to deal with the solid materials,
11 they are going to have either through paint, PCB materials,
12 or some other regular type of materials. Now, where we can
13 live with them, like, for example, say I have PCBs below 50
14 PPM, I can treat the material under the radioactive material
15 category and use zero when it becomes final and get rid of
16 it.

17 But when I do have the mixed waste situation, I
18 think for me to deal with it there needs to be a mechanism,
19 we need to talk about that, we need to discuss that. And
20 does that put me back into the EPA category? I mean, I may
21 get my material all cleared under the NRC regulations, but
22 then EPA could come in and impose a -- later stuff on me.

23 MR. CAMERON: Okay. I think this is taking us
24 into the issue of the amounts, types of material. And we're
25 going to go over to Bob Nelson. But Paul, could you just

1 put your state comment on the floor? Real quickly go ahead
2 and then we're going to go into this?

3 MR. GENOA: Yeah. Obviously. Paul Genoa, NEI. I
4 didn't want to give a misperception that the states don't
5 care about regulating materials that could be harmful. That
6 wasn't my intent. What I was really trying to do was
7 address the real crux of the issue, which is the difficulty
8 of dealing with segregating licensed material from natural
9 material, or man-made material that may not be licensed to
10 you. You can't tell the difference when it goes to a
11 landfill.

12 MR. CAMERON: Okay. And that's the whole non-AEA
13 issue again. And Bob, go ahead.

14 MR. NELSON: Yeah. I think the mixed waste
15 question goes right to one of the issues we're asking for
16 input on. And it would seem to me that if we have a mixed
17 waste, say a soil, that contains a hazardous waste but that
18 might meet whatever criteria we establish under this rule
19 making for clearance, that we need to consider whether that,
20 just because it's mixed waste, it would stay within our
21 regulatory realm or would be released under this clearance
22 rule. I think it's a good -- that's a good question, and we
23 need -- that's something we need to look at.

24 MR. CAMERON: How much of the material that is out
25 there that could be subject to a -- a clearance standard is

1 going to be mixed waste? In other words, how much of the
2 material out there presents this mixed waste regulatory
3 problem?

4 MR. NELSON: I can't answer that. It would -- it
5 would --

6 MR. CAMERON: Do we have anybody who can give us
7 an idea? Ray?

8 MR. TURNER: In the recycling process virtually
9 all of the material will eventually come in contact with the
10 mixed waste or with another hazardous material such as KO 61
11 dust, and the bag house material or other downstream
12 products from the steel mill process. I had my hand up a
13 few minutes ago. One of the problems that the steel
14 industry in the United States, and in other countries as
15 well, encountered, was release limited for things like
16 cesium 137 in their bag house dust. Once it was detected in
17 their bag house dust if the steel mill had a contaminating
18 event, if it was detectable there was no release limit
19 because it was a mixed waste.

20 The NRC, the DOE, myself, the EPA, a lot of --
21 Steel Manufacturer Association -- put a tremendous amount of
22 effort in trying to establish some level, because there was
23 no level or no bag house dust essentially in the U.S. that
24 didn't have some level of cesium 137 in it.

25 Coming from whether it's Three Mile Island or

1 Chernobyl or a nuclear fallout, all the raw materials that
2 go into the steel making process had trace amounts of
3 radioactive materials.

4 I heard a private conversation just prior to the
5 meeting this morning that since World War II -- and Andy and
6 I were talking a few minutes ago -- the supersensitive
7 detectors, like the personnel detectors that clear some of
8 the people leaving nuclear facilities now, when they look
9 for materials to build those detectors they look for
10 materials that are pre-World War II materials. Why?
11 Because almost all of the steel after World War II has trace
12 amounts of radioactive material in them. And there -- if
13 you really want to look at release limits, we've been
14 recycling that material since World War II. We've been
15 using radioactive contaminated scrap metal since World War
16 II. It's all contaminated to a degree right now.

17 And I think to bring everything into focus here
18 what we're here to do and as I understand it is to
19 establish, okay, what level, can we establish some sort of a
20 regulation or rule making that says now we can go ahead and
21 release that material for recycling, such as the bag house
22 dust in the steel industry. We now have a level that we can
23 release that material to landfills, where it's of no
24 concern, not considered to be a problem.

25 MR. CAMERON: Okay. Thank you very much, Ray. Ed

1 Bailey has a follow on, I think, to that.

2 MR. BAILEY: Yeah, what Ray was saying is, I
3 think, one of those historical things we sort of know. But
4 we may not all understand where all of the contamination
5 came from.

6 After World War II cobalt 60 became available to
7 put in the refractory walls of blast furnaces, and the NRC
8 or AEC and the states consciously licensed these sources
9 being placed into the -- the refractory, or brick walls
10 inside blast furnaces. And as the wall wore down, those
11 sources would drop off.

12 And in evaluating that practice we basically set
13 up a de minimis level because we looked at -- I don't
14 remember the magic number now, but if three of these sources
15 dropped off at a single batch would you still be low -- be
16 below the exempt concentration for cobalt and steel.

17 So, I don't know how many more of those things are
18 still being licensed. I'm not aware of any. But those were
19 licensed well into the '70s.

20 MR. CAMERON: Okay. Thank you, Ed. How about
21 some other comments on types of materials, amounts, hazards?
22 Brian?

23 MR. HEARTY: Brian Hearty. I have two comments.
24 One on type of materials that are covered under this, and
25 one on other agencies. First of all, on the type of

1 materials there's a footnote in the issue paper regarding to
2 CFR 40.13 on unimportant quantities of source material, and
3 it says that that's outside of the scope of this effort. I
4 guess I'm wondering, then, how am I going to be able to
5 clear source material contaminated onto, say, steel or other
6 types of material? I want to know what that footnote means,
7 if someone could elaborate on that?

8 MR. CAMERON: We'll start with Trish and then go
9 to Stew. We'll go back to get that.

10 MS. HOLAHAN: Well, the primary focus of that was
11 that the 40.13(a) exemption sort of deals with material that
12 is -- is not licensed. It's currently exempt. And so we
13 were looking at -- and we do have a separate rule making
14 that we are beginning to undertake to address that specific
15 issue because it was looking at a little bit different
16 focus. So, and perhaps maybe Stew can add to that.

17 MR. CAMERON: Stew Treby.

18 MR. TREBY: Trish is correct, 40.13(a) is a
19 general exemption that says dealing with tritium, I guess,
20 or source materials, but mainly tritium, I think, that if
21 it's below a certain percentage -- I think it's like .05
22 percent -- then it's exempt. It's not under the NRC's
23 jurisdiction and therefore we would not regulate it in any
24 way.

25 MR. CAMERON: Thank you, Stew. Brian, you had

1 another question?

2 MR. HEARTY: Just to follow up on that. You said
3 that there is a possible proposed rule making. Is that
4 going to go through a similar process of enhanced public
5 participation or not?

6 MS. HOLAHAN: We're -- yeah, we're at the very
7 early stages of that one, even earlier than this one, and so
8 we're looking at ways that we can enhance participation, so
9 it would be some form of enhanced participation. Yes.

10 MR. HEARTY: Thank you. I guess the other
11 question I had, then, was under other agencies, we talked
12 earlier about the ANSI standard already being approved, and
13 I would like to question maybe Bill on that as to what dose
14 level their clearance criteria was set at, since that wasn't
15 mentioned.

16 MR. CAMERON: That's a -- that's a good point.
17 The whole -- and it was mentioned in the issues paper.
18 Should we go to -- Trish, do you want to say something and
19 then we'll have Bill Kennedy. And I don't know if Jaz gets
20 into that at all or not, but.

21 MS. HOLAHAN: Well, I was going -- and I'm not
22 going -- I'll let Bill talk about what the ANSI standard
23 says. As I just wanted to address the issue as yes, that's
24 a consensus standard. One of the -- there is a new public
25 law in place that NRC considers voluntary consensus

1 standards as part of its rule making. When I had referred
2 earlier to a national standard, I was implying a national
3 regulation.

4 MR. CAMERON: Okay.

5 MS. HOLAHAN: So, let me turn it to Bill perhaps.

6 MR. CAMERON: All right. Bill Kennedy.

7 MR. KENNEDY: And do I understand you want an
8 overview of what the ANSI standard contains?

9 MR. HEARTY: Whether it's dose-based.

10 MR. KENNEDY: The standard is dose-based. The --
11 after years of discussion and debate we based the standard
12 or one millirem a year, consistent with international
13 commerce. We felt that one of the compelling comments made
14 by NRC staff and others on the ANSI balloting was that the
15 standard should consider compatibility with international
16 commerce as a major issue. And in our case we felt that was
17 a driver.

18 It also contains derived screening levels that
19 show concentrations in terms of becquerel per square
20 centimeter or becquerel per gram, and then translated into
21 traditional units that the U.S. uses to serve as screening
22 values. And the values were set looking at contemporary
23 modeling and coming up with about the same conclusion that
24 the NRC background document here did, that if things
25 appeared to be within about the same order of magnitude that

1 was generally good modeling agreement, so we developed
2 groupings of radionuclides that fell within about the same
3 order of magnitude.

4 We felt the nature of the problem was that the
5 screening levels would be used as sort of trigger levels
6 that would make the decision of radioactive waste or not
7 radioactive waste. And therefore you're measuring the top
8 end of the spectrum of concentrations that you'd be dealing
9 with, not quantifying the lower end. And therefore we felt
10 that the screening levels were appropriate to serve as upper
11 end alarm, but yet we felt confident that the average levels
12 being released would be substantially lower than the
13 screening levels, without having to be quantified at lower
14 levels that would be cost ineffective to achieve.

15 Is that enough of an overview for now. I have
16 information and can describe more details of the standard if
17 it's appropriate in this group, if people would like to hear
18 that at some point. But I -- I let that up to the will of
19 the chairman.

20 MR. CAMERON: I think that it may be appropriate
21 at some point. I just have two questions now, one for Bill,
22 that I think clarification for the record, is the status of
23 the ANSI effort at this point. And secondly, either for
24 Bill or the NRC staff, we might as well get this out for
25 those who are here in the room, but for people who are

1 reading the transcript too, this whole distinction. Can
2 someone describe what the difference is between a dose-based
3 standard and using concentration levels? What are the
4 implications of that? I think that's all tied up in this
5 discussion. And Bill, I'll go to you for the first and
6 whatever you want to offer on the second.

7 MR. KENNEDY: Okay. The status of the ANSI
8 standard is that we went through balloting with the N-13
9 subcommittee of ANSI, and passed that and submitted the
10 final paper work in August. It was sent forward to the full
11 ANSI. They evaluated the process and gave their approval
12 on, I think, it was August 31st.

13 The standard is now in editing and will appear as
14 part of the Health Physics Newsletter publication and will
15 be available for purchase through ANSI. And I'm thinking
16 this may be a two to three month period for the final
17 editing before publication.

18 And your second question was?

19 MR. CAMERON: I just think at some point there
20 should be a description of the difference between something
21 that is a standard that is dose-based versus something that
22 is concentration levels. And what are the implications of
23 that that someone, for example, someone in the public, what
24 are the implications of that for them in terms of radiation
25 safety, et cetera, et cetera?

1 MR. KENNEDY: If you look at the old regulatory
2 guide, 1.86, although there were efforts to determine the
3 dose basis of the concentrations of surface activity that
4 were present there, it was primarily based on
5 instrumentation, the responsiveness instrumentation of field
6 instruments to detect the levels.

7 Because instrumentation will detect radiation with
8 different sensitivities by different radionuclides, and
9 because those radionuclides deliver different doses through
10 different pathways, inhalation and ingestion is different
11 than external exposure, it's not always apparent that
12 setting an instrumentation standard will define a consistent
13 level of dose or risk to the exposed individuals. And that
14 certainly is the case of the values that are found in
15 regulatory guide 1.86.

16 What we attempted to do in the ANSI standard was
17 to do dose calculations, looking at a variety of pathways,
18 much as was done in the support documentation that was
19 passed out at this meeting for metal recycle. We considered
20 re-use of materials and metal recycle and developed ranges
21 of dose response by radionuclide and set the screen values
22 within those ranges.

23 Now, we were also sensitive to the fact that if we
24 developed criteria that could not be detected or could not
25 be detected in a cost effective manner then the standard

1 would be useless because when faced with the decision of
2 spending more money to define a "trivial situation," in
3 quotes, industry would have no compelling motive for doing
4 this and the material would always be disposed as
5 radioactive waste. And I think the background information
6 for this meeting described this paradigm, if you will, a
7 bit, and set the context quite well.

8 So, you have to be able to detect something with
9 an instrument and yet live within a dose criteria to make
10 sure you're not exceeding some value of health protection
11 for the public. It can work the other way. In the case of
12 tritium, you come up with a health-based standard that might
13 defy both detectability and contamination control, but if
14 your licensee is compelled to operate its facility to
15 control contamination and sources and yet you derive a
16 health-base number that exceeds a detectability standard,
17 then that doesn't make any sense either.

18 So, we used the three and balanced the three
19 subjects of dose-based detectability and contamination
20 control in evaluating how to set the groupings and the
21 levels associated with individual radionuclides.

22 MR. CAMERON: Okay. Thank you. Do we need to add
23 to that?

24 MR. HEARTY: I was just going to suggest
25 clarification of an ANSI standard versus an NRC standard.

1 MR. CAMERON: Right. Yeah, I think that's an
2 important issue because -- and it -- Trish, do you want to
3 lay that relationship out, because it's fairly important in
4 terms of sending the correct message here, I think?

5 MS. HOLAHAN: Okay. And I'll also look to Bill if
6 I misspeak on what the ANSI standard is, but a -- the ANSI
7 standard is what's considered as a voluntary consensus
8 standard, so it is a standard or guidance that's pulled
9 together by a committee, based on uncertain information, and
10 then individuals can use that standard. As an NRC standard
11 or regulation it's a law that licensees must comply with.

12 And as I mentioned before, there is now a public
13 law that is put into place that requires federal agencies
14 look at what voluntary consensus standards are available,
15 and consider them, as opposed to a government unique
16 standard, or in the development of a regulation.

17 MR. CAMERON: And are we -- are we considering the
18 ANSI standard in the development of any standard that we
19 might undertake?

20 MS. HOLAHAN: We would take that into
21 consideration. Yes.

22 MR. CAMERON: Okay. I think, Bill, do you want to
23 put a clarification in there, and perhaps an important one?

24 MR. KENNEDY: Yes, I think there's a substantial
25 difference between the standard and a regulation, and that

1 part of what the NRC is trying to accomplish here is
2 approaching a regulation. The regulation would, as I
3 understand it, allow the NRC to regulate its licensees. One
4 aspect of that might be the adoption of certain radiation
5 protection standards or limits. In establishing the
6 framework for the regulation, then the options might be does
7 the NRC develop numerical criteria or dose limits for
8 clearance of materials, or would they adopt the ANSI
9 standard. But it has to be conducted and done through a
10 regulatory process, and that's what you're endeavoring to
11 achieve with this meeting and with the whole proposal for
12 making a regulation for clearance. That's my limited
13 understanding of the mechanics of this.

14 MS. HOLAHAN: Chip, I -- I would just like to
15 agree with Bill on that, that we would then go through a
16 formal, open process that we public review and comment.

17 MR. CAMERON: Okay. And Bob is going to add
18 something up there for us to come back to, and we'll see
19 what it is. Roy?

20 MR. BROWN: Roy Brown with CORAR. Bill, I have a
21 question, now, what was the dose limit you used in the
22 development of your standard, and how did you arrive at that
23 proper number?

24 MR. KENNEDY: The final standard is based on one
25 millirem. What we -- many of the early drafts contain 10

1 millirem because we felt that that would be protective of
2 health and would be consistent with things like EPA, circle
3 clean-up, the -- the Clean Air Act. You know, we had a
4 number of historical precedence that would be similar at 10
5 millirems.

6 In the final analysis a compelling argument was
7 comparability with international commerce and trade. And I
8 think the gentleman from the steel industry earlier laid out
9 the difficulties of accepting or rejecting materials from
10 another country after they've already arrived, and that we
11 certainly didn't want to have material from the U.S. going
12 to Europe and then being rejected and having to be shut back
13 here and having that interfere with international trade. We
14 found that to be a very compelling argument on the final
15 analysis.

16 MR. CAMERON: Okay. And that's another part of
17 this regulatory maze. Let's go to the Doctor.

18 MR. LULL: Just a clarification about the
19 relationship between dose-based and concentration-based.
20 Basically, the concentration and the dose are inevitably
21 interlinked by the assumptions you make in calculating the
22 dose. You can start with at a dose level that you
23 arbitrarily select, be it one millirem per year or 10
24 millirems per year or 100 millirems per year, and back
25 calculate then through those assumptions what concentrations

1 you can achieve that will give you that dose limit, or you
2 can start a concentration to see what kind of dose you're
3 going to get, given certain concentrations you pick.

4 But the assumptions that are in between the
5 concentration and the dose are very critical in terms of
6 what those are and whether those are at any point ever
7 actually tested to see the validity of the assumptions,
8 because we're dealing with some very complex assumptions in
9 all of these calculations.

10 Now, my other point is that when in medicine when
11 we use radioactive materials, we're always looking at risk
12 benefit. You know, looking at theoretical risk most of the
13 time because of the low-levels of radioactivity that people
14 are exposed to versus the benefit that can be gained. In
15 this case, we're not really talking necessarily about
16 benefit except cost savings. And I'm wondering whether the
17 ANSI standard looked in a very scientific fashion at the
18 cost benefit relationship of the level that they picked to
19 be consistent with international guidelines, because one
20 millirem per year is a very, very low-level of radiation
21 exposure. And to achieve that may require extraordinary
22 cost expenditures on the part of multiple levels of industry
23 that could be utilized far better in other areas. Those
24 potential uses of those costs are benefits that are not
25 being achieved by setting such a low-level. And the

1 difference between one MR per year and 10 MR's could be very
2 significant, and I'd like to know what those numbers are at
3 some point. I think that becomes an issue that needs to be
4 addressed in this process.

5 MR. CAMERON: Thank you very much. And Bob Nelson
6 has a follow on to that.

7 MR. NELSON: Actually, I'll attribute it to Andy,
8 who just had a quick sidebar. But there appears to be a
9 confusion there in regard to the discussion of dose-based
10 versus a concentration-based standard. Actually, the point
11 you made is very valid. The dose-based and
12 concentration-based standard can really be on and the same.
13 The point is whether we continue on with a instrument-based
14 standard, a sensitivity-based standard, which is basically
15 the current practice, or whether we move towards a
16 dose-based standard which would then be converted into the
17 concentrations for implementation.

18 MR. CAMERON: Thanks. I think that's all being
19 sort of becoming clear now, and of course Tony is going to
20 talk about our instrument-based standard during the next
21 presentation.

22 A quick follow-on from the Doctor.

23 MR. LULL: Yeah, the point here is that the
24 instruments are really measuring radioactivity, which
25 relates to a concentration. So, instrument-based is really

1 another way of stating concentration-based, because the
2 instruments are measuring the concentration. So, instrument
3 and concentration are really one and the same, and they're
4 really one and the same with dose, except through the
5 assumptions that we use for calculating the dose are retro,
6 going backwards for calculating concentrations to achieve a
7 certain dose given an input term of radioactive materials.

8 MR. CAMERON: Okay. With no debate showing on
9 that, but maybe there is. All right.

10 [Laughter]

11 Do we have three possibilities, two or fourteen?

12 MR. HUFFORT: Just a clarification. In general, I
13 agree with you the concentrations are what you measure with
14 your instrument, but if you have a very, very sensitive
15 instrument that is expensive and right -- let's say can
16 measure extremely low levels of a specific radionuclide, and
17 then you have another instrument that is rather gross in its
18 reading. You can only measure gross count rates. Is not
19 that sensitive. It might even be very old. In one
20 situation you're going to actually detect the radioactivity,
21 and the other you will not. So, what we're trying to do is
22 establish what concentration should be detected and how does
23 that relate to dose.

24 MR. CAMERON: And Tony is going to be back with us
25 on a couple of different things, including the

1 detectability.

2 Let's go to John and then go over to Paul and Ed
3 and Jaz and --

4 MR. KARNAK: Okay. This is John Karnak again.
5 There is another important part of that dose in that when we
6 did our modeling and NRC did their modeling, we looked at
7 who might be effected and set that dose at the person who
8 might be most effected. So, you need to keep that in mind,
9 too, that various people who handle this material are
10 potentially subjected to different doses. So, that one
11 millirem dose is, I believe, an ANSI standard, as well as in
12 the work we did, the most effected person. And anybody else
13 may be one or two orders of magnitude less risk or possibly
14 even less risk than that.

15 MR. CAMERON: Okay. Paul?

16 MR. GENOA: Yeah. Paul Genoa with NEI. And all
17 of these discussions are accurate, but I think we want to
18 get back and focus on what NRC's mission is, which is
19 protection of public health and safety. And the bottom line
20 is we need to be able to compare apples and apples.

21 And the truth is that an equal amount quantity
22 concentration of one isotope and another do not deliver the
23 same dose to an individual, regardless of the pathway you
24 select. So, the question is how do we establish a standard
25 that provides a uniform level of protection of public

1 health, and that's really where we need to focus our energy.
2 And I think we're all going to get there, and you can get
3 there multiple ways.

4 Currently, the approaches we use are more
5 legalistic. How do we assure that we don't have licensed
6 material that is legally regulated? That doesn't have a
7 distinction or a relationship to public health, and that's
8 why we're trying to make this shift to a health-based or
9 dose-based standard.

10 MR. CAMERON: Okay. Thanks, Paul. Ed, did you
11 want to add anything to that?

12 MR. BAILEY: When we look at the present separate
13 contamination limits, the 1.86 or equivalent, and we look at
14 any of these dose-based things, we will see some of the
15 levels that go up and some that go down. And certainly one
16 of the problems will be any that go up, explaining why
17 you're going to raise them. And I remember years ago EPA
18 having a discussion about we can't raise any levels.

19 And we have taken the approach here that
20 basically, yeah, we're going with the dose-based currents
21 level, if you want to put it that way, but using the old
22 1.86 it's sort of a lair ago. And, you know, this is what
23 we're doing now in absence of a legal framework to address
24 the dose limits versus using 1.86, which has no relation to
25 dose at all.

1 MR. CAMERON: Okay. Jaz, you had your hand up on
2 this issue, which I think is then connected.

3 MR. DEVGUN: Right. I think in clarification for
4 one that the dose-based is essentially this base sustainer.
5 Is that a step in the right direction? Now, compare 1640,
6 for example, with the reg guide 1.86, it does provide -- the
7 newer page would provide us with the values of which
8 volumetric, as well as surfacial. Yes, in certain cases,
9 just the point he raised, we looked at, for example,
10 radionuclear is of interest to us, cobalt 60, cesium 137,
11 magnus 54. We drive the values for surfacial guideline,
12 compare them, one -- says they are much lower. They are
13 like six percent of the original values. So, pretty
14 destructive.

15 I wanted to, nevertheless, the comments on that
16 would be coming and we can discuss them later on in the
17 later sessions. But I think I wanted to have a
18 clarification. As we are talking about the international
19 standards, to my knowledge, IAES does not have -- and
20 Giorgio can correct me if it's not true -- has not really
21 come out and said use 10 microsever per year as a basis for
22 some of -- for the clearance of materials. It has become a
23 de facto number, one million -- of which is one millirem per
24 year. They have said basically some tens of microsever,
25 maybe. So, they shy away from actually pinning down their

1 number. The last document they had was IAEA, a tech
2 document 855, was not finalized as yet.

3 But countries have gone ahead and used the 10
4 microsever. Germany has used that. Some other company.
5 German Radiological Safety Commission has actually put out a
6 document last year which basically says 10 microsever per
7 year, which is one millirem per year. So, it has become a
8 de facto clearance.

9 MR. CAMERON: Could we get a clarification on
10 whether there is actually an international standard, and if
11 so, for what? There seems to be some confusion on that.
12 Giorgio, can you do that?

13 MR. GNUGNOLI: Giorgio Gnugoli with NRC. Right
14 now the safety series 89 is still in effect for the IAEA,
15 and there they site the 10 microsevers, up to 100 severs, as
16 being the guideline for -- for in effect clearance. They're
17 in the process of revisiting it, so I don't know how long
18 that will remain in, I guess, in effect.

19 There's also the effort the EC is doing for May of
20 2000. So, everyone has a target to try to get things in
21 place, but there's nothing right now chiseled in concrete.
22 But it looks like everyone's going towards the 10
23 microsevers or the one millirem per year.

24 MR. CAMERON: Okay. Thank you. Debra?

25 MS. MCBAUGH: I think I'm going back a little bit,

1 but --

2 MR. CAMERON: That may be helpful.

3 MS. MCBAUGH: I was -- mainly I was looking at --
4 I guess I was going back to Ed's comments on the reg guide
5 1.86 in that in our state -- of course, until we adopt
6 anything else -- that is kind of what we use. But we did
7 start using the tritium numbers that were coming. I think
8 DOE had some different numbers for tritium. And we had a
9 facility that we had to clean up that had a neutron
10 generator with mass quantities of tritium all over on the
11 concrete and the walls and all. And that was the only
12 isotope. And reg guide 1.86 is not appropriate for
13 cleaning, because tritium is treated like cobalt 60, and
14 that does not make sense.

15 So, in that sense we really need something other
16 than the reg guide, 1.86. And we also have Hanford, which
17 has a lot of data only. And that is something that s a
18 state we don't regulate, of course, at Hanford, but we do
19 have some influence, and we do -- and so we tend to take our
20 regulations there with us, at least to evaluate things. And
21 in that case, you can't measure anything very far in the
22 material, if it's just a betometer. Even stroncio 90, which
23 is pretty hefty. But you can't measure it down very far.

24 So, we need -- I just wanted to get some input on
25 why the instrument-based isn't very useful for us, and, in

1 fact, the dose-based, I guess the other -- the third point I
2 wanted to make is the dose-based is better for us to have it
3 based in that terms than concentration, because we can go to
4 the public and say this is what it means. Concentration
5 doesn't mean a lot to them, but if we can put it all in
6 terms of the apple of dose and convert to risk if we would
7 like, that's a lot more helpful to us.

8 MR. CAMERON: That's a nice point, I think, in
9 terms of public understanding and perhaps acceptability. I
10 think if there's one thing that ties this discussion
11 together is that there's a number of different or proposed
12 standards -- I'm using that term loosely -- that various
13 regulatory bodies are -- are using, and it seems like we're
14 all over the board on how we're doing all this stuff.

15 But at some point -- we are getting towards lunch,
16 but at some point I want to go back and make sure -- I want
17 to ask Bob Nelson to tell us whether we're getting the type
18 of information out of this session that the NRC needs in
19 terms of type, amount, et cetera, et cetera.

20 But for those of you who did have your hands up,
21 let's take those and let's go back. I think Bill, for one.
22 Let's get these comments on the table and then let's go back
23 to Bob for sort of a reprise and perspective on this. Bill,
24 define ANSI.

25 MR. KENNEDY: Oh, ANSI is the American National

1 Standards Institute.

2 I think I heard a number of comments here and I
3 didn't want to have a misperception of what the ANSI
4 standard contains or what it attempts to do. I think Robert
5 made a good point back here about -- I think that's who you
6 are -- about the dose limits and the difference in the
7 scenario applications to derive concentrations. And Sebra
8 said about the same thing.

9 In fact, the ANSI standard has as the primary
10 criteria a dose standard of one millirem a year, and it goes
11 on to say that when justified on a case-by-case basis at
12 higher doses, when it can be assured that the exposure to
13 multiple sources, including those not covered by the
14 standard, will be maintained Allara and will provide an
15 adequate margin of safety below the public dose limit of 100
16 millirem per year.

17 So, if an implementing agency says, "We have a
18 material or a situation where we think it's perfectly safe
19 to operate at, pick a number, 10 millirem or some other
20 number," they can adopt the standard and derive their own
21 screening levels, based on the number that they would like
22 to see.

23 The derived screening levels in the standard are
24 those that would be used in default of doing your own
25 aervation of the concentration levels. That if you wanted

1 to look, as what the NRC has said here and EPA, sort of a
2 worse case condition to be this upper trigger, this upper
3 alarm, then you can use those values; but if you believe on
4 a case-by-case basis that your one millirem would give
5 different concentrations -- maybe it's a facility that's
6 rarely used or has some directed purpose, and you can
7 justify deriving concentrations -- then you have the
8 flexibility to do that. Again, and if you want to exceed
9 the one millirem, through justification to a regulatory
10 authority, you could make a petition that you would want to
11 do that as well.

12 So, the standard is a dose-based standard. It
13 sites one millirem a year. And it describes how that is to
14 be implemented and applied. It's one millirem above
15 background. I want to add that as well.

16 MR. CAMERON: Okay. And we probably will get into
17 a discussion of that.

18 Let's let Bob tell us what else the NRC would like
19 to know in terms of relationship to this particular agenda
20 item.

21 MR. NELSON: Yeah, I -- one of the key questions
22 we wanted some input on was what materials ought to be
23 covered within the scope of this rule making. Currently,
24 we've addressed metals and concrete within the scope of the
25 reg 1640, and metals specifically being steel, aluminum and

1 copper. We're currently initiating some research in area
2 soil. So, that's the -- the -- that's the range so far. If
3 there are other materials that we need to look at we need
4 that input. So, we need to consider that soon. It takes
5 time to do the research involved with these areas, and the
6 sooner we get that input the sooner that we can make some
7 decisions about the scope of the type of the materials that
8 will be encompassed in any type of rule making we might
9 undertake.

10 MR. CAMERON: Okay. Thanks, Bob. Let's just
11 stick on -- only comments on other materials. Paul?

12 MR. GENOA: Yes. Paul Genoa, NEI. And I
13 understand that you have to sort of eat an elephant one bite
14 a time, but virtually a consistent national standard needs
15 to cover all materials. It needs to cover the people who go
16 in and out of a facility, the clothes they wear, the shoes
17 they have on their feet, the vehicles that go in and out.
18 Everything. And I understand you may have to move it that
19 one step at a time.

20 MR. CAMERON: Well, that brings up an issue that I
21 think we'll need to grapple with later, that for terms of
22 public acceptability, working out implementation problems,
23 whatever, and this is just an idea of an issue to think
24 about, should there be a pilot program or should we start
25 incrementally on this type of thing. And it's something

1 we'll go to later on.

2 Anything on other types of materials for the NRC?
3 Trish?

4 MS. HOLAHAN: I guess I'd just make like a point
5 of clarification is -- is if you're eating the elephant one
6 step at a time is are there materials we should look at
7 first, other than what we laid out and what Bob laid out?
8 Are there other things that might be considered as something
9 that should be considered before other things? I guess
10 that's what I'd like.

11 MR. CAMERON: Let's go to Dave back there. I
12 think he has a comment.

13 MR. BELK: Yeah. David Belk, University of
14 California. I guess when you're asking about materials the
15 first thing that comes to my mind that I'll be discussing
16 with our waste managers is when you're talking about, for
17 lack of a better term, research materials or materials used
18 in a laboratory, laboratory wastes, which are hard -- they
19 don't come up with the concrete definition of, like,
20 concrete or metal, but those are the mixed materials that
21 was addressed earlier. It could be anything from gloves,
22 shoes, whatever. So, those sorts of materials would be
23 something that I think we should be looking into.

24 MR. CAMERON: So, there's different ways to cut
25 the definition of what other materials, and we had this

1 point raised earlier about the type of materials.

2 Paul, do you have a follow up on that?

3 MR. MASCHKA: Yes, to tie those two together. We
4 broadly have a category we call dry active waste. It's
5 virtually solid waste. It's trash that was generated within
6 a nuclear facility that may or may not have come in contact
7 and incorporated radioactive material licensed by that
8 facility. And that material generally is difficult to deal
9 with.

10 Now, the complication you have is going through a
11 recycle pathway. That's a hard analysis. Fortunately, if
12 you just look at disposal of those materials, since
13 generally they're trash and don't have re-use value anyway,
14 you only really have to look at what is the dose consequence
15 of that material going for disposal at a landfill. And
16 because the pathway analysis for that, it really only boils
17 down to an inventory, what's the radioactive material
18 inventory at that facility to a potential resident farmer
19 living on it at some future time or whatever. That could
20 simplify your analysis and allow you to incorporate
21 consideration of that trash type category, perhaps in a
22 reasonable period of time.

23 MR. CAMERON: Okay. Thank you. Let me ask a
24 question about the nature of the beast here that I think it
25 may be important from the aspect of public concern. We keep

1 talking about an elephant, and when -- when the public --
2 this is an assumption on my part, but when the public hears
3 about the -- the release of materials issue, and keeping
4 mind the point that Rob raised about these dollars that
5 could be spent in alternative ways, it seems a legitimate
6 question, how much material are we talking about that's out
7 there? I mean, what is this? How much stuff can -- is
8 going to be flying out there? What types of material is it?
9 And how hazardous is it? Paul, do you want to say anything
10 on that?

11 MR. GENOA: Well, again, yeah, I just want to get
12 back to that. That was my very first comment here. To put
13 it in context for the public we have to understand that
14 everything in the world has natural radioactive material
15 incorporated. Much of it -- most of it has also man-made
16 radioactive material associated with it. And if you're
17 really going to do a good job, you're going to evaluate
18 everything that goes in and out of a facility to make sure
19 you don't add to it an amount that could be harmful.

20 So, what we're talking about is everything, at
21 least from our perspective, because we evaluate everything
22 that goes in and out. We need a standard to do that
23 effectively, to be able to sort it.

24 MR. CAMERON: Okay. Let's go to Heather. You did
25 raise this initially. What's the best way to describe this

1 problem to the public so that they can get a perspective on
2 it? Because there's a lot of experts in the room and it may
3 not be a problem for them, but Heather?

4 MS. WESTRA: Well, I think a related question with
5 respect to the amount of material and protection of the
6 public is how likely is the public going to be exposed to
7 this material? What are the potential exposure pathways and
8 who is likely to be most exposed to this material?

9 MR. CAMERON: A very good point. Can I ask the
10 NRC staff, Trish, where do we get into the assumptions about
11 exposure pathways during -- in our efforts and during this
12 two-day meeting?

13 MS. HOLAHAN: Well, perhaps I could turn that over
14 to Bob to answer the question. In terms of on the two-day
15 meeting is we're looking at the health and environmental
16 impacts is the exposure pathways are considered as we
17 discuss what the health and environmental impacts are.
18 We're developing looking at the technical basis that would
19 look at all those exposure pathways, and perhaps Bob might
20 be able to add to that.

21 MR. CAMERON: Bob, do you want to just give us a
22 quick take on that?

23 MR. MECK: Yeah. Bob Meck, NRC. With respect to
24 the exposure pathways, in the technical analysis we look at
25 external exposure, what somebody could breathe in, and what

1 somebody could ingest, either through a food stuff or as a
2 secondary ingestion, say from rubbing their hands on their
3 face or, believe it or not, more of us stick our hands in
4 our mouths than we know that we do. And so we look at that
5 as well.

6 Chip is over the with the sidebar talking about me
7 putting my foot in the mouth.

8 MR. CAMERON: I'm glad you anticipated what I was
9 thinking, Bob.

10 [Laughter.]

11 MR. MECK: But the question about the probability
12 of the scenario is one that is an important one. How likely
13 is it that -- that a scenario could happen in the first
14 place? And what we wanted to do and what we attempted to do
15 is to not get into an endless game of, you know, what's the
16 worse scenario with somebody, but rather, what are highly
17 likely scenarios that could effect even a few people. But
18 we would like to keep it in the realm of reasonableness. In
19 doing that, it requires a professional judgement,
20 ultimately. It has to come down, say, well, you know,
21 generally you would exclude something that where somebody
22 was eating 50 pounds of dirt a day or something like that
23 because it's just not reasonable to assume that.

24 Along those lines, and getting it to more
25 realistically what we did, I was just telling my colleague

1 behind me that we subdivided and developed the farm, the
2 residents farmers farm, in publishing NUREG 1640 because we
3 felt that it was a much more likely scenario. And that when
4 I contacted the Bureau of Census and labor statistics and
5 other folks about how many subsistence farms are there in
6 the United States that are less than an acre, typically the
7 answer is that farms that are captured by the statistical
8 methods available are generally specialized farms. Either
9 they raise all chickens or all garlic or something like that
10 and they're not exactly subsistence farms. And so it was
11 partially on that basis that we subdivided the farming and
12 made townhouses with suburban gardens, for example, as a
13 more reasonable probable scenario.

14 MR. CAMERON: Okay. Thanks -- thanks, Bob. And I
15 think Heather's point sort of underscores the fact that in
16 presenting information to the public for a discussion of
17 this issue, that we really have to lay out some elemental
18 facts about -- about the situation. Ed?

19 MR. BAILEY: I have one to add that I don't know
20 whether it's really been considered is the use of slightly
21 contaminated fuels. Are materials with BUT content that
22 could be used as fuels, either as a method of disposal or
23 whatever.

24 And the second one is that I would urge you to try
25 to come up with some rationale or some dose-based limit that

1 says, "Hey, for the ones we weren't smart enough to think of
2 today, you should analyze those." And I'll give you an
3 example that's near and dear to some of the UC people and
4 the DOE people is if you cut down trees for fire protection
5 can you sell that wood to be incorporated into paper or can
6 you sell it to be used to be burned in your house for logs?

7 MR. CAMERON: Boy. Maybe that's a good time to
8 break for lunch on that question. But a good point, Ed.
9 Let's take one more comment from Scott Peterson. And we
10 really do need to -- to break for lunch. And we are going
11 to be picking up a lot of stuff later on. But Scott?

12 MR. PETERSON: Thanks, Chip. Scott Peterson with
13 the Nuclear Energy Institute. I think maybe trying to boil
14 this issue down to where the public can understand it maybe
15 to liken it to curbside recycling, which a lot of people do.
16 And when you set -- when you set your bin out for curbside
17 pickup, what do you put in the bin? And I think that's
18 where we're at with solid materials right now. We're trying
19 to determine what we can put in the bin to take to
20 recycling. And, you know, that's an analogy I think a lot
21 of people can deal with and relate to.

22 MR. CAMERON: Yes.

23 MR. HURSCH: I represent the environmental groups
24 that were invited to participate in this process who have
25 declined to attend, and I brought with me the letter that

1 they had sent explaining their reasons. I'd like to give
2 that, if I may, to your staff and ask that they distribute
3 that to you. If you're concerned about public acceptability
4 of recycling of radioactively contaminated materials into
5 consumer goods, you should think very carefully about what
6 you're considering here today. I'm going to give you that
7 letter. There are a few on your table outside. It would be
8 nice if you could distribute copies to the people here.

9 MR. CAMERON: Absolutely.

10 MR. HURSCH: We just refuse to participate in a
11 process that we think is illegitimate and that we think is
12 rustic. Thank you.

13 MR. CAMERON: Well, we appreciate you bringing
14 thins. Do you want to identify yourself --

15 MR. HURSCH: My name is Dan Hursch. I'm with the
16 Committee to Bridge the Gap. One of the groups.

17 MR. CAMERON: Oh, great. Thanks, Dan. Thank you.
18 All right. This letter will be available for everybody from
19 Committee to Bridge the Gap and a number of other groups in
20 the area, and will be considered in the NRC development of
21 this process, and we will do that.

22 But let's break for lunch. It's 12:15 on my
23 watch. Let's be back at 1:30 on your watch.

24 (Whereupon, at 12:15 p.m., the meeting was
25 recessed, to reconvene at 1:30 p.m., this same day.)

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

[1:43 p.m.]

1
2
3 MR. CAMERON: Good afternoon, everybody, and
4 welcome back. We're going to get started now, and I'll just
5 see if -- see you later -- all right.

6 We're going to go to our next presentation now.
7 And this is at 1:30 on your agenda: How does the NRC
8 currently handle control of solid material?

9 The first presentation today that Trish gave we
10 talked about the process. The second presentation we talked
11 about various aspects of the nature of the problem, the
12 need.

13 This presentation is going to look at the NRC's
14 historical and current practice, including specifics, in
15 terms of the control of the release of materials. And we
16 have two people up here with us today to give you the full
17 range of expertise, and one is Tony Huffort. He's from our
18 office of Nuclear Material Safety and Safeguards. And
19 Tony's going to give the presentation.

20 We also have Tom Essig with us, who's from our
21 Office of Nuclear Reactor Regulations, so we can be as fully
22 responsive to you. I think that there's going to be a lot
23 of questions about the current practice, and we not only
24 want to answer those, but we want to hear your observations
25 on current practice, particularly vis-a-vis whether there's

1 a need to do something -- the NRC to do something here, and
2 what that might be.

3 And I'm just going to turn it over to Tony at this
4 point.

5 Tony?

6 MR. HUFFORT: Thank you, Chip.

7 We've discussed some of these issues already
8 during the first two sessions. For those of you that want
9 to focus on this particular session, you can follow the
10 information contained in Section A(1)(3) of the issues
11 paper, which is called, "The Current NRC Case-By-Case Review
12 of Licensing Requests for the Release of Solid Material."

13 As Trish pointed out in her session, the NRC does
14 have regulations for the disposal of solid materials that
15 contain relatively large amounts of radioactivity. But the
16 current NRC regulations do not contain generally applicable
17 those criteria for the control of solid materials with
18 relatively small amounts of radioactivity that is either in
19 or on materials and equipment.

20 Even though the NRC does not currently have such
21 criteria in place to cover the release of these materials,
22 it's likely that licensees will continue to release solid
23 materials with these small amounts of radioactivity, either
24 when the material becomes obsolete or otherwise unusual
25 during the operations or when the facility is finally being

1 decommissioned.

2 We do have regulations that require licensees to
3 survey materials prior to their release to evaluate their
4 radiological hazard. These are contained in Part 20.

5 One set of criteria that our licensees use to
6 evaluate solid materials before they are released are
7 contained in Regulatory Guide 1.86, which is entitled,
8 "Termination of Operating Licensees for Nuclear Reactors."

9 Now, that is the guidance used by nuclear
10 reactors, but in the materials area we have a similar
11 document that was developed after NRC Reg Guide 1.86 was
12 published. That guidance document is called, "Policy and
13 Guidance Directive Field Cycle 8323." Now, the title for
14 this one is, "Guidelines for Decontamination of Facilities
15 and Equipment Prior to Release for Unrestricted Use or
16 Termination of Byproduct, Source, for Special Nuclear
17 Materials Licenses."

18 Both documents contain a table of surface
19 contamination levels that only apply to surfaces of objects.
20 They do not contain any criteria for volumetrically
21 contaminated material such as soil. And for some situations
22 the NRC does allow release of volumetrically contaminated
23 materials if the survey does not detect radioactivity
24 present in the survey. And this is sometimes referred to as
25 our "no detectable policy."

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1 This does not mean that there's no radioactivity
2 at all present in these volumetrically contaminated solid
3 materials. It simply means that the survey did not pick up
4 the radiation that was present in the materials.

5 NRC also evaluates specific requests for the
6 release of solid materials on a case-by-case basis, which is
7 discussed further on the next slide. First, a little more
8 detail about Reg Guide 1.86, which we've discussed somewhat
9 this morning.

10 It was developed in 1974 by the Atomic Energy
11 Commission, which is the predecessor to the NRC. In 1982
12 NRC published Fuel Cycle 8323 with virtually the same
13 criteria. The table of acceptable surface contamination
14 levels are applicable to various radionuclides or
15 radioactivity materials. They are stated in terms of
16 measurable radioactivity and were based principally on the
17 detection capability of readily available survey instruments
18 when the guide was developed some 25 years ago.

19 There are some current limitations with this
20 guidance. It contains only numerical limits for the amounts
21 of radioactivity that can be present on the surfaces. As I
22 pointed out earlier, it's not applicable to volumetric
23 contamination. Another limitation is that the surface
24 contamination levels were not based on the potential dose
25 that an individual might receive that comes in contact with

1 this material. Again, it was based primarily on the
2 detection capability of survey instruments during the 1974
3 time frame.

4 As Trish pointed out in her talk, the guide was
5 not developed in an open process under the administrative
6 procedures act, and another limitation is that although
7 surveys do provide licensees with some reasonable assurance
8 that elevated levels of licensed radioactive material is not
9 being released from the control, not all licensees survey
10 the materials at the same level of detection sensitivity.
11 Now, this can lead to differences in the level of
12 protection.

13 One regulatory option that is available to
14 licensees is to request approval of alternative disposal
15 procedures. This regulation is contained in Part 20. It's
16 10 CFR 20.2002. You're allowed to seek authorization for
17 disposal of materials with relatively low levels of
18 volumetric contamination. And these are typically buried
19 either on-site at the facility or at a nearby landfill.

20 The licensees are required to evaluate and
21 describe the waste. They're supposed to be describing the
22 pathways of exposure of the disposal site, the calculated
23 dose to workers, and also members of the public that might
24 come in contact with this material. And the that guideline
25 is used for acceptability is that the overall dose should be

1 small fraction of the NRC public dose limits, which is
2 currently set at 100 mrems per year.

3 And naturally if the disposal were to be made in
4 an agreement state, the agreement state would have authority
5 to review and approve it.

6 So as you can see the NRC does have criteria in
7 place for the release of solid materials in the absence of a
8 national regulatory standard. And this raises the question
9 of how much material has been released so far.

10 In my previous slides I noted that licensees are
11 required by the NRC regulations to survey licensed materials
12 before they're released. And this is conducted by a
13 radiation survey and licensees are required to keep records
14 of the survey results. However, the survey results are not
15 required to be submitted to the NRC and the NRC does not
16 track the amount of solid materials released from all of its
17 licensees, making it difficult, if not impossible, to
18 estimate the total amount of material that's been released
19 over the years.

20 Now, there are several reasons why the NRC does
21 not track all of these material releases. For one, the NRC
22 inspectors inspect licensees' radiation protection programs
23 and as part of that they look at the survey records to make
24 sure that the releases have been made in accordance with the
25 regulations. The solid material releases that are made by

1 licensees are in compliance with all the licensee programs,
2 which are consistent with the existing NRC regulations,
3 which I pointed out, and we estimate that the exposures from
4 the releases are low.

5 In general the amount of solid material, such as
6 metal and concrete, that has been released to date is small
7 compared to what will be occurring when the reactors and
8 other facilities eventually become decommissioned.

9 Now, I realize that I presented a lot of
10 information here and I'd like to talk with you about these
11 guidelines in some detail and entertain your questions. If
12 you want, Chip, I can throw out a general question to start
13 things rolling. For example, for those people who are
14 already familiar with this practice, does something need to
15 be changed? Is this current approach acceptable to you
16 and/or what changes would you like to have be made?

17 MR. CAMERON: Well, let's start with Tony's
18 question and I think that the bottom line here is what are
19 the implications of the current practice for whatever future
20 course the NRC should take in regard to these issues? And,
21 of course, we're going to take any questions for Tony and
22 Tom about what the current practice is, too, but let's start
23 with the question Tony posed.

24 Any comments or answers on that? Jaz?

25 MR. DEVGUN: Tony, can you clarify the

1 requirements under the current astencia for 2002, what it
2 is? From what I have seen, the descriptions are fairly
3 small there under 2002. What can you add to it so a
4 licensee in the field can actually go ahead and apply it?

5 MR. CAMERON: Okay. Tony, you heard Jaz's
6 question and for those of you who might not have heard it,
7 Tony do you -- could you think you could just summarize what
8 the question was?

9 MR. HUFFORT: Sure. Yes, the NRC has had on the
10 books for a number of years a regulation called 20.302,
11 which was superseded when we revised Part 20 that that
12 became 2002.

13 What this allows licensees to do is to make
14 specific requests for limited releases of radioactivity
15 contained in things such as soil, maybe some building
16 materials like concrete, roofing materials, and stuff like
17 that.

18 What the NRC staff would do is they would review
19 what the licensee submitted, which should contain a
20 description of the waste -- for example, what form is this
21 waste in? How many cubic feet are we talking about, if it's
22 a volumetric source? What's the activity, in curies,
23 perhaps. And they should also talk about disposal
24 environment. For example, is this going to be a relatively
25 isolated disposal, far away from any possibility of any

1 human intrusion, or is it going to be close to a residence?

2 As far as pathways of exposure, it would include
3 external radiation, internal exposure such as inhalation
4 from any suspended material, and also the NRC does evaluate
5 ground water as part of this evaluation.

6 As far as the overall dose objective, it is
7 typically a small fraction of natural background and of
8 public dose limits of 100 mrems per year. The dose limits
9 that we've seen vary anywhere from less than a mrem to above
10 one mrem. And I'm sure Tom could add to that.

11 MR. ESSIG: Sure. We've -- on the reactor side of
12 the house, we've, over the years, have approved a number of
13 applications of 20.2002 for on-site -- primarily on-site,
14 although they haven't all been on-site. There have been
15 some off-site disposals. Where, as Tony said, the material
16 to be disposed is described in terms of its -- what it is,
17 what radioactive material it contains, by nuclide, by total
18 activity, and then an estimate by the licensee of the dose
19 received via various exposure pathways. And then we do an
20 independent evaluation of that and satisfy ourselves that
21 the licensee's analysis was indeed complete and describes
22 the environmental impact.

23 It's a fairly broad regulation and it gives us
24 fairly broad authority in the sense that there are -- there
25 are not many things that maybe wouldn't fit under that, but

1 historically we have -- I mean, it wouldn't be a vehicle,
2 for example, for disposing of something that maybe ought to
3 go to a Part 61 licensed disposal site. It's the material
4 that's of lesser contamination and that would, when a
5 rigorous environmental pathway analysis was performed, it
6 would result in doses of less than a couple of mrems per
7 year.

8 In fact, our acceptance criterion is one mrem per
9 year from all pathways.

10 MR. CAMERON: Okay. We're going to -- before we
11 get to Paul Genoa, Bob Nelson from NRC staff has some more
12 to add.

13 MR. NELSON: Just real quickly, guidance on this
14 is contained in Nu Reg 1101. It's called, "On-site Disposal
15 of Radioactive Waste." It's in two volumes. Ignore Volume
16 2, it's outdated. But Volume 1 explains in quite great
17 detail the types of information that needs to be submitted
18 to support a 2002 disposal request. It was written at the
19 time it was 302, but it's essentially the same regulation,
20 so we followed the same guidance. Nu Reg 1101.

21 MR. MECK: And I would just add that on the
22 reactor side, we published it in kind of an obscure place,
23 but it's the proceedings of the 1986 mid-year symposium on
24 decommissioning that was held, a Physics Society-sponsored
25 symposium. And those symposium proceedings contain a paper

1 by Ed Branigan and Frank Convill of the -- Ed Branigan was
2 then of the NRC staff. And it just basically outlined our
3 process that we use for reviewing and approval 2002s.

4 MR. CAMERON: Okay. Paul, do you have a comment
5 on this 20.2002?

6 MR. GENOA: Yes, if I could.

7 MR. CAMERON: All right.

8 MR. GENOA: I guess, one, Tom, I didn't know about
9 that reference. So that would be good to get written or
10 perhaps be made available to us.

11 Two, I actually in working for a Florida power
12 corporation obtained an alternative disposal request for
13 some material, and it was a very satisfactory approach. A
14 rigorous review, approval by the state, approval by -- a
15 review by the NRC, and material that represented a very
16 small fraction of the mrem worse case was, in fact, disposed
17 of at a local municipal landfill, and that worked.

18 But my understanding -- first, a couple of points
19 of clarification. Anthony, you mentioned volumetric
20 material. I didn't know that it was only limited to
21 volumetric. I thought it, in fact, could cover surface
22 contaminated material. So that's just a clarification
23 comment.

24 And, two, it clearly does not envision recycle of
25 the material, as I understand it. So that would be a

1 limitation of that approach that would need to be addressed.
2 And I guess one other point I wanted to ask about, in your
3 presentation you describe surveys. And, in fact, licensees
4 conduct surveys which may be evaluations, may be physical
5 measurements, of material all the time. Certain types of
6 surveys are documented and recorded. Not all evaluations
7 are documented and recorded, that I know of. Again,
8 material flows in and out of facilities all day long. We
9 don't keep a record of every individual who goes through a
10 detector or their clothing or their personal gear and so
11 forth. So I wanted to make that clarification.

12 MR. CAMERON: Okay, thanks.

13 Tony, anything to add on that?

14 Other questions on 1.86, current practice, or
15 comments on Tony's question, which was basically, I think,
16 is this current practice acceptable and satisfactory?

17 Paul?

18 MR. GENOA: I guess, first of all, the Reg Guide
19 1.86 criteria is not consistently applied to all licensees.
20 We don't have it in the license for power reactors, for
21 instance. Rather, it's a zero-detect approach. And, of
22 course, the problem with that is guidance has been provided
23 on how hard you should look. And that is an approach --
24 that's a valid approach. However, the limitations are that
25 someone can always come back with 20/20 hindsight and

1 determine that they want to look harder. We know that
2 that's happened in the state of Connecticut, that the state
3 agency determined that, in fact, they should look 10 times
4 harder than the NRC would require you to look. Thereby,
5 finding material -- or perhaps finding material that would
6 require action after the fact. So that's sort of the
7 sliding scale, always vulnerable to being second-guessed in
8 the future about a past practice.

9 That's a very unacceptable approach to move
10 forward. There needs to be consistent standards, that's
11 verifiable, that's fixed in time, so that past practice can
12 be evaluated and ensure that it was done properly, verified,
13 but, you know, it can't be second-guessed.

14 MR. CAMERON: Okay. Thanks, Paul.

15 UNIDENTIFIED SPEAKER: I actually have a question.
16 Do you think that if we establish a national regulation
17 that's applicable to the NRC licensees, that would help in
18 that kind of a situation? So that if you came across this
19 second-guessing, the NRC staff might be able to compare what
20 concentrations might be present to a mrem standard, for
21 example, or a five-mrem standard? Would something like that
22 be helpful?

23 MR. GENOA: I think it would be helpful on two
24 accounts. First is a legal account that you, in fact, were
25 complying with your license conditions and did not violate

1 your regulations. So that is very important in a
2 compliance-focused industry like ours. So we want to be
3 able to say, yes, we are complying with regulations and we
4 can prove it through analysis.

5 And I guess the second one really has more to do
6 with putting an activity -- even if it was an error on the
7 part of a licensee -- in some form of context. Well, this
8 was done or maybe even this was done wrong, but in context
9 here is what we think is a safe level and here is this
10 activity in perspective. It would help the public
11 understand and have trust in the regulatory process, and
12 better put in context what these events are that you often
13 hear about in the news, that are often, perhaps,
14 sensationalized.

15 MR. CAMERON: Thank you. Do we have some
16 follow-ons to the type of remark that Paul made? I think
17 he'd probably want to raise another issue, or is it related?

18 MR. HEARTY: This is Brian Hearty, Corps of
19 Engineers. One of the benefits that we see as a potential
20 for promulgating a rule making on this is that under SERCLA,
21 we would then have a relevant and appropriate regulation
22 that we could turn to, where right now we can't presuppose
23 your approval process on the case-by-case basis for our
24 SERCLA remediation or environmental remediation that we're
25 conducting.

1 So, I mean, we do use the guidance in 1.86 at our
2 sites, but it's something where we really don't have a
3 relevant and appropriate regulation.

4 MR. CAMERON: Okay. Thanks, Brian.

5 Bill, you look like you have something you want to
6 say. Mike's going to bring you the mike.

7 MR. RAINES: I'd just like to throw out a general
8 question. In Reg Guide 1.86 it has smearable and fixed
9 contamination limits. I've seen at DOE facilities a
10 tendency to focus on the smearable levels and set the
11 monitoring limits at those levels -- or -- because they're
12 lower. We're thinking that you wouldn't have to take two
13 kinds of surveys to show compliance with the surface
14 contamination limits. So I've seen kind of a
15 mis-application than the original intent, if you will, of
16 Reg Guide 1.86.

17 Do you guys see that with licensees? And, if so,
18 has that been a problem or is that something that needs to
19 be addressed, as well?

20 MR. MECK: We've seen licensees adopt levels that
21 are much lower than 5,000 beta gamma deporin for 100 squared
22 centimeters. That's could be an error and it could just be
23 that it's own administrative limits. It could be taking
24 into account averaging.

25 As far as people adopting the one-fifth values

1 from Reg Guide 1.86 for that reason, I haven't seen too much
2 of that.

3 I can give you a personal opinion about the
4 smearable limits, and that is that it's difficult to
5 translate a smearable level to a dose. And that was
6 contained in Reg Guide 1.86 mainly as a matter of practice.

7 MR. CAMERON: Okay. Thank you.

8 Paul raised in his description of 20.2002 the
9 involvement of the state in that particular example. And
10 not to just focus on 20.2002, but to look at our
11 case-by-case clearances, so to speak, of material, how does
12 an agreement state or a non-agreement state or a municipal
13 government entity -- how are they involved in these, if at
14 all?

15 MR. HUFFORT: From the reactor side -- and I think
16 it applies to the material side, as well -- if the licensee
17 is located in an agreement state, the agreement state has
18 the authority to do the on-site review or disposal review of
19 this provision of the regulations. If it's not an agreement
20 state, then the NRC has retained that authority for both
21 reactor material and from -- if it's a materials licensee.

22 MR. CAMERON: But that's for a 20.2002?

23 MR. HUFFORT: Yes.

24 MR. CAMERON: And what about where -- I take it
25 that if you're clearing material to go off-site, what's the

1 role of an agreement state or a non-agreement state in that
2 particular process?

3 MR. MECK: It's my understanding that some
4 agreement states have adopted the values in Reg Guide 1.86
5 in their own regulations. For example, I know we have
6 somebody here from the state of Washington. I thought the
7 state of Washington, Department of Health, had those
8 numerical limits in their regulations.

9 MR. CAMERON: Has Ed Bailey contacted, for
10 example, if there's going to be a clearance of material
11 under 1.86 for a nuclear power plant in California?

12 MR. MECK: I wouldn't think so. I think Paul
13 Genoa said it fairly well, that clearance of material
14 happens on a daily basis. Many, many times a day there's --
15 it's -- materials are surveyed and determined whether or not
16 there's any detectable surface contamination. If there is,
17 then they're handled as radioactive waste. If there isn't,
18 then they're -- what we call being free-released, or
19 released in an unrestricted manner.

20 So that happens many times a day. And they're
21 just -- there wouldn't be -- well, other than maybe on some
22 special case or something. I can't think of a situation
23 where the agreement state or a non-agreement state would be
24 consulted on the release of that material, as long as it was
25 determined that they're using reasonable survey methods that

1 were accepted by the staff and applied properly. There
2 shouldn't be any question about it being able to be
3 released. And that's an area that we do inspect.

4 MR. CAMERON: Okay. Eric?

5 MR. GOLDIN: Eric Golding, Southern California
6 Edison.

7 I look at this and kind of step back a little bit,
8 the big picture. What it looks like is you're coming to a
9 fork in the road and you're using some instrument to decide
10 whether or not something is contaminated and will become
11 low-level waste or not. And the reality is you're making a
12 decision -- the fork in the road is is it contaminated or
13 does it stay within the restricted area and either receive
14 further decontamination or becomes low-level waste?

15 And so the fork in the road is how hard you have
16 to look to make that decision. And for surface-contaminated
17 objects, materials, people, vehicles, you make that decision
18 based on whatever instrument is, you know, appropriate for
19 the use. Which could be a pancake frisker or something like
20 that.

21 For volume-contaminated material or
22 potentially-contaminated material, you have a wide variety
23 of equipment that could be used. And in NRC parlance -- and
24 we have guidance from the NRC for this -- the no-detectable
25 criterion is what's applied. And the limits that are

1 guidance in some of the documents are extraordinarily low.
2 So that's where you need to come to some kind of level
3 playing field, that Paul's mentioned before, so that you
4 know what instrument you need to select to, you know,
5 release this material and you take away the risk of human
6 errors from either improper surveys or incomplete surveys
7 and things like that.

8 MR. CAMERON: Okay. Thanks, Eric.

9 Tony? Tom? Any comment on that fork in the road?

10 MR. HUFFORT: Not on the fork in the road. It's
11 more the detection sensitivity. I guess I would have a
12 question back as to do we need to update the guidance with
13 information that's more current than 1974? Is it good
14 enough, what we have right now? I know that some
15 manufacturers have made some improvements in their
16 instrumentation. Is it appropriate to review that to see if
17 it's to be used?

18 MR. CAMERON: Let's get some comment on that.
19 That's a good question and let's give it to Paul, and then
20 we'll go to Debra. Use Paul's -- yeah.

21 MR. MASCHKA: I'm Paul Maschka from General
22 Atomics. And I'm really not following your train of
23 thought, because of something that just occurred to me. In
24 the new regulation, would the intent be to have both the NRC
25 and the agreement states follow the same pattern? Because

1 one of the problems that we're running into is we have a
2 license from the NRC and from the state of California. And
3 some facilities are covered by the same license.

4 So the NRC comes in and they do their inspection,
5 a survey, because we're decommissioning, and then we wait
6 for the state. And so what we've asked is would the state
7 please just rubber stamp what the NRC does or will the NRC
8 rubber stamp what the state does?

9 MR. CAMERON: Okay. Let's go to Ed on that one.
10 That's an interesting conundrum.

11 MR. BAILEY: You also forgot to mention that DOE
12 is involved in some of the sites, too.

13 And we had a meeting between DOE, California, and
14 NRC several months ago, and at least from DOE and NRC's
15 standpoint, we agreed that we would accept each other's
16 surveys. We would decide which buildings were primarily the
17 state's and which were primarily NRC's. And we've had some
18 lag in getting that information out.

19 But basically, yes, we will take the NRC's
20 document, read through it, and try to respond to it very
21 quickly, saying we agree or concur. And NRC has essentially
22 agreed to do the same thing.

23 I think that hopefully will be a big step forward
24 to get to that point at some of these facilities that are
25 jointly regulated -- you know, that have all of these

1 different aspects.

2 In most facilities there is a clear distinction
3 between what is NRC territory and what's state territory.
4 But I'd like to go back to the question on the release of
5 material.

6 I think Southern Cal Edison on releasing material
7 from a reactor site basically got concurrence from both the
8 state and NRC on some material that was to be disposed of at
9 a non-low level waste site that was slightly contaminated.

10 We basically concurred, yeah, we believe that's
11 okay, too. Although we probably didn't -- well, we did not
12 have regulatory authority over the reactor. If they send
13 something off that's licensable, then the guy that gets it
14 is faced with the situation of having to be licensed for it.

15 MR. CAMERON: Okay. Thanks, Ed. Let's go to our
16 other agreement state representative, Debra.

17 MS. MC BAUGH: Yeah, Debra McBaugh. And I guess I
18 was questioning if the change in Reg Guide 1.86 would be
19 done if we decide not to go further with anything else. Is
20 that before -- and if that's the case, I mean Reg Guide
21 1.86, it is true it's in our regs. It's been in the regs
22 for years and years and years, just as a -- sort of phone in
23 there. And when we did the last part 20, we actually put a
24 little paragraph that said use it if you're going to be
25 doing clean-up. I mean, originally there was nothing that

1 said what to do with that table. It was just kind of in
2 there.

3 But if you're actually going to make some changes
4 in it, that would be good, because, as I mentioned before,
5 tritium was an issue for us and would be an issue further.
6 And I think there's other ways to make changes so that the
7 isotope list is a little different than it is currently.

8 The instruments, that would be more confusing to
9 deal with, I think. But I think that would be important.

10 MR. CAMERON: Go ahead, Tony.

11 MR. HUFFORT: The question you asked was: Is
12 revision of Reg Guide 1.86 on the table? Well, the issue's
13 paper, I think, says, should we go with the status quo or
14 should we change it?

15 I don't know if I understand your question.

16 MS. MC. BAUGH: You'd either decide to go with the
17 dose-based or you'd decide to change?

18 MR. HUFFORT: Yeah.

19 MS. MC BAUGH: Okay. I just wanted to make sure
20 that you weren't like thinking to try to do both at the same
21 time. Which wouldn't make sense, but ...

22 MR. HUFFORT: I would -- this is open for
23 discussion, but I would think that if we came out with a
24 dose-based regulation, Reg Guide 1.86 would have to be
25 changed, because it doesn't have a very firm dose basis.

1 MR. CAMERON: Debra, did you have something else
2 to add on that?

3 MS. MC BAUGH: Well, I guess I'm a little bit -- I
4 guess it depends. We had a little discussion earlier about
5 this, as to whether the rule is going to just be a
6 dose-based rule and then there will be a Reg Guide that will
7 have all the concentration values or whether it will all be
8 combined.

9 And Reg Guide 1.86, it seems to me you would -- it
10 seems to me confusing that we would also be doing an
11 instrument-based thing and concentrations that were for
12 volumetric and surface, and the dose-based rule. I don't
13 see why Reg Guide 1.86 would stay.

14 MR. CAMERON: I'd like to remind people that what
15 we're looking for are those types of comments from you. In
16 other words, NRC has not decided that they're going to do
17 anything, okay? And questions or statements like that --
18 suggestions like that, like, well, if you do a dose-based
19 rule you don't need to do anything with 1.86, those are the
20 -- that's the type of feedback we're looking to you guys
21 for. There's been no decision by the NRC to do anything.
22 And that's why we're trying to get your input to decide
23 whether current practice should just be updated, there
24 should be a rule. If there's a rule, should there be a Reg
25 Guide? What should the rule be? Many of the things that Ed

1 Bailey talked about in terms of Paul and General Atomics,
2 those types of coordination issues are going to need to be
3 resolved, whether you're dealing with a Reg Guide or a rule.

4 So all of these types of examples, even though
5 they're coming up here, are going to be really relevant to
6 if there is a rule that's going to be proceeded with.

7 Bob, do you want to add something here while we're
8 on it?

9 MR. MECK: First of all, to reinforce Chip's
10 statement, we made no decisions about the content of this
11 rule. That's why we're here.

12 And on this topic, I'd say stand by for Session 4,
13 because that's where we're going to talk about alternatives.
14 And this is where we want your input on the alternatives
15 we've identified in the issues paper, but also any other
16 alternatives that you can suggest that we should consider.

17 So we're open at this point as to what the rule
18 will be, whether we continue with current guidance, revise
19 the guidance of a dose-based standard, whatever. Those are
20 all on the table, and we're looking for that in the next
21 session.

22 MR. CAMERON: Okay, thanks. Jaz?

23 MR. DEVGUN: I think my comment on this question
24 would be that obviously if you go over the dose-based
25 regulation, for example, if you go ahead with 1640, and

1 finalizing that, that automatically Reg Guide 1.86 would get
2 superseded.

3 But what 1640 doesn't give you is a dose number.
4 It does some comparisons, but it has not made a decision
5 that, go ahead apply this number. So that's what needs to
6 be decided and put out. Then automatically we can go ahead
7 and drive the concentrations -- similar to Reg Guide 1.86,
8 in addition to volumetric. So Reg Guide 1.86 will go away.

9 MR. CAMERON: Okay. I saw some affirmation.

10 MR. HUFFORT: 1640 simply has dose conversion
11 factors to go from concentration to dose. We haven't set
12 the dose criterion, that's wide open. That's just a
13 technical methodology for translating contamination to dose.

14 MR. CAMERON: Okay. Mark?

15 MR. SOMERVILLE: Yeah, this is Mark Somerville
16 from Diablo Canyon.

17 I just wanted to make sure that I didn't miss
18 something. When we talk about a 2302 petition, we're
19 basically -- we've already determined that something's waste
20 and that we're going to dispose of it outside of maybe a
21 Part 61 licensed facility.

22 And back to what Paul had said before, what we're
23 really looking for is kind of a numeric, whether it's a
24 dose-based way or a surface or volumetric concentrations,
25 that gives us some kind of a floor or a ceiling -- depending

1 on which side of the issue you're on -- for a standard of
2 care. Much like we have -- we're able to go into a court of
3 law and say, "We've met the standard of care for Allara.
4 We've met the standard of care for dose."

5 So is there a numeric value that we can say we're
6 probably far -- we can prove that we're below this value?
7 Whether it's a surface level contamination or a dose. And,
8 therefore, we have not adversely impacted the public.

9 MR. CAMERON: Tom?

10 MR. ESSIG: Yeah, I think your point is well
11 taken. The situation that we, of course, are in is that
12 there is currently no floor or ceiling, as you say, in Part
13 20. And therein lies the problem, because -- problem in the
14 sense that what we have to enforce with regard to surveys is
15 no detectable, because there isn't -- for surface and
16 volumetric contamination of solid materials.

17 And that's why we're in that particular situation
18 now.

19 The imposition -- if we wanted to go that way --
20 of any dose-based standard would necessarily have to be
21 preceded by a rule change, because Part 20, if you look at
22 Subpart K, which addresses waste disposal, is very clear as
23 to the authorized manners in which radioactive material can
24 be dispositioned. It goes to a Part 61 licensed disposal
25 site. It's transferred to another licensee. It's disposed

1 of via 20.2002, and there's a waste -- probably references
2 waste oil incineration, and there's a tritium and a carbon
3 14 exemption in there. And if it isn't one of those, it's
4 not authorized.

5 So if there's something that is to be released in
6 an unrestricted way with surface contamination or volumetric
7 contamination on a solid material, then it's basically not
8 authorized under current Part 20. And that's the situation
9 that we face right now. And that's why we're -- the big
10 reason for having this meeting.

11 MR. CAMERON: Can I ask a question before we go --
12 Don wants to put something on the record here. From a
13 process point of view, is the reference to 20.2002
14 misleading, at best, because it really doesn't come in here
15 and we probably should eliminate that from the discussion?
16 I see Eric is --

17 MR. GOLDIN: 20.2002, or the old 302, is a waste
18 management decision, not a decision whether or not something
19 is contaminated and should be free-released.

20 MR. CAMERON: Okay. I think that Bob Nelson --
21 and we have some comments over here. Don, was your comment
22 on this or were you going to go somewhere else?

23 MR. COOL: Thank you, Chip. It's closely related
24 to this, but I think there was a point that was just raised
25 here, that we may want to come back to a little bit when

1 we're talking a little bit about the options and the
2 implementation.

3 And it may have slipped by us because we're so
4 used to hearing the word. But the word that got tossed out
5 was "Allara." And the question that I think needs to be
6 tossed up on the paddock for us to come back to at some
7 point is if you're in the scenario of pursuing a rule making
8 action and if you are considering a dose-based criteria,
9 does the agency also then need to look at the concept of
10 Allara, as it does with other limits? Yes or no and why?
11 Because that would be a substantial issue.

12 MR. CAMERON: Okay. I think we've captured that
13 here, and also Barbara has it captured over there. But we
14 will come back to that.

15 Bob?

16 MR. NELSON: Let me just say a few words about
17 2002, and maybe we can get off -- away from it. When you're
18 talking about releases of solid material through regulatory
19 control, which is really what we're talking about, there's
20 three ways you can do that. You can recycle it, you can
21 reuse it, or you can dispose of it. Basically those are the
22 three things you can do with it.

23 2002 -- and the reason it's mentioned here is
24 because it is a part of the regulation that allows you to
25 release material from regulatory control for disposal. Once

1 it's approved by 2002, it's released, the material's
2 released. You've disposed of it. It's released from
3 regulatory control. That's part of the existing framework,
4 and it's the only reason we brought it up today.

5 And that is because how does NRC currently handle
6 control of solid material? This is one of the ways. 2002
7 is a release. What we're really trying to do here is
8 explain what this current framework is, not necessarily
9 saying it's the right framework or it's the wrong framework,
10 trying to get your feedback on what more we need of the
11 framework to make it complete.

12 MR. CAMERON: Okay. Thanks, Bob. Just trying to
13 answer the question that's posed, right? All right.

14 Paul?

15 MR. GENOA: Yeah, Paul Genoa, NAI. A couple of
16 minor points related to the current situation and how it
17 works. I guess the first is that I would again try to
18 separate the activities. The one is trying to sort material
19 that needs to be regulated from that that doesn't. The
20 second is once you know it needs to be regulated, how would
21 you do it and what are the options? And I think that gets
22 to what 2002 really is, is it is a restricted-release
23 scenario. You're allowed to do something with this material
24 that's pre-specified, reviewed and approved. It only
25 happens after you've already determined that that material

1 needs to continue to be controlled.

2 And it's my understanding that if it's buried on
3 site, it still needs to be addressed in license termination.
4 So it isn't done once you've released it. It needs to be
5 re-evaluated prior to license termination.

6 Now -- and I think it's a valid approach. And I
7 think there are probably a whole lot of tiered approaches
8 for restricted release. But I believe that that discussion
9 can only occur after you've had the first discussion about
10 which camp do you go into? Does it need more control or
11 not?

12 And I think that gets back to the current tools we
13 have available to make that decision. And currently I think
14 our current tools are inadequate for a couple of reasons.
15 And the first, you've asked the question, Tony, was about
16 instrumentation. Should we just go ahead and update the
17 guidance to tell you what instruments to use and how to use
18 them and improve it? It's possible you could do that, but
19 my sense is that -- that an instrument-based approach is not
20 appropriate to your health and safety charter. It's --
21 there isn't a direct relationship between the ability to
22 detect something and its potential harm. That's not clear.
23 So I think it should be health-based. And the fact that
24 instruments constantly change and newer and better
25 instruments may be available, you have to recognize that

1 there's an impact on society to imposing those requirements
2 on you.

3 First, you have to buy the instruments. You have
4 to train on it. Then you have to implement it. I mean, how
5 long should I count? It's not just the instrument, it's the
6 counting environment. Do I go get pre-World War II steel
7 from battleships to build a cave in which I can do this
8 analysis? And let me take a week to do it.

9 And I think the best analogy was brought to mind
10 yesterday. We all fly out here and go through airports.
11 And every one of us has to go through a metal detector to
12 get onto the airplane. And we know how many of us have been
13 caught going through there. We didn't have a gun. You
14 know, we had a piece -- a paperclip or something in our
15 pocket.

16 The point is instruments have limitations. And if
17 you set your rules on the limitations of the instruments,
18 you get into a problem, a conundrum. If you dial down the
19 sensitivity on those metal detectors, no one gets to fly
20 anywhere. No one gets to go through. The same thing
21 happens if you impose grossly restrictive instrument
22 requirements on an industry, the materials can no longer
23 flow in and out. Because it takes so much burden of proof
24 to show that there's nothing there. It far outweighs the
25 advantage and in the far extreme, the industry just goes

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1 away.

2 MR. CAMERON: Let me ask -- let me check with all
3 of you out there, including the NRC staff. We do have a
4 session tomorrow that I believe the whole issue about
5 detectability -- and the issue that Paul squarely put on our
6 plate -- is going to be addressed. So obviously it's
7 relevant here in terms of should 1.86 be updated to improved
8 detectability limits? Can we save that -- should we save
9 that discussion for tomorrow?

10 Okay. Well, let's do that, then. Debra?

11 MS. MC BAUGH: I just sort of wanted to clarify
12 it. It sort of came to me a little more clearly about what
13 I was trying to say about 1.86 versus the dose-base for our
14 own state.

15 And my confusion was probably because as a
16 philosophical health physicist I kind of like just doing a
17 dose-based, and I'm hoping that when we adopt 25 mrem, which
18 we're in the process of doing, I'd rather not have Reg Guide
19 1.86, because I think it's a little confusing.

20 But we will have it. It's in our regs and we're
21 not going to take it out, because the materials inspectors
22 and the people that are actually doing the licensing realize
23 that if using those limits a licensee will be within the
24 dose-base, it's much easier for them to do it.

25 So I'm pretty sure that we're not going to get rid

1 of it in our regs. And it's strictly for a practical
2 reason, as long as it still meets the 25 mrems. So the
3 dose-base will be there as the firmest part, but if they can
4 use that to do it on a -- more easily, then that's what will
5 happen.

6 MR. CAMERON: Tony, do you agree? I mean do you
7 have any comment on Debra's statement?

8 MR. HUFFORT: It sounds like you have a dose basis
9 that you're trying to establish and you'd be using Reg Guide
10 1.86 as an implementation tool or a practicality tool?

11 MS. MC BAUGH: For some licensees.

12 MR. HUFFORT: For some licensees. Well, as we
13 said before, our dose basis is wide open here, and the
14 ability to use Reg Guide 1.86 is on the table, should it
15 continue or not.

16 As far as whether Reg Guide 1.86 is within 25
17 mrems or not, I would default somewhat to Dr. Meck, because
18 Nu Reg 1640 does have some estimates in there. You can make
19 the conversion, and it's my understanding it's well below
20 25.

21 MS. MC BAUGH: We have done that.

22 MR. HUFFORT: Okay.

23 MR. CAMERON: Is there a doctorate in health
24 physicist philosophy? And does Dr. Bailey have one?

25 MR. BAILEY: Probably several.

1 When we talk about dose-based limits, they're real
2 nice. But from a practical, simplistic viewpoint, it would
3 be much better in my opinion if you took a dose-based,
4 risk-based number -- similar to what you do for air
5 emissions, water emissions -- and came out with numbers and
6 concentrations that are pegged right in the regs.
7 Otherwise, we have created full employment for health
8 physicists -- which is not all bad. But I think what we
9 have also created is just a catalyst for debate on
10 facilities trying to decommission.

11 You put the regulatory agency and the licensee in
12 the position of each time potentially having to try to
13 reinvent the wheel. To say, okay, what we've done, the
14 modeling we've done, and everything is absolutely correct.
15 And that is a very unsolid position to be in.

16 We have very few people that will challenge those
17 stated numbers in the regs, as opposed to coming out and
18 saying, "Feel good, do 25 or do 10 or do 15 or one," or
19 whatever. And if you could possibly get to that point, sure
20 you're going to injure some scenarios in the process, but I
21 would hazard to bet if you did a cost benefit there's not
22 going to be much difference in the amount of money spent
23 disposing of the material that doesn't meet -- somehow
24 should not have been restricted, than you will proving that
25 each case you have to meet some limit or some dose limit.

1 I have a saying that if your dose modeler can't
2 come up with the number you need, you need to hire another
3 dose modeler. And it all comes down, in many cases, to how
4 persuasive the consultant or the licensee or the regulatory
5 person is going to be. And I don't think we really should
6 be in that sort of position. So I would go with something
7 that we can measure. It doesn't matter whether you have to
8 count it a day or whatever. You're still going to have to
9 do that in the other method.

10 So let's go with something that's very
11 straightforward. We've been praying for soil contamination
12 limits for at least three decades.

13 MR. CAMERON: Okay. Thanks, Ed. And I'd like to
14 follow-up with everybody on that, beginning with Bob.

15 MR. NELSON: I think that's a great question to
16 pose to the group. We have a license termination rule,
17 decommission rule, that sets a dose standard, but within the
18 rule there are no conversions of that standard to either
19 soil release criteria or surface contamination limits.

20 The question in my mind is should -- if we go
21 forward with the clearance rule making on a dose basis,
22 should that rule take the same form or should the rule be
23 more specific, as you suggested, in providing those
24 concentration limits within the context of the rule?

25 There's pros and cons to that, clearly, but I

1 think that's an important -- that's an area where we need
2 some feedback from you folks as to what the content of that
3 rule ought to be.

4 MR. CAMERON: Okay. Brian?

5 MR. HEARTY: Brian Hearty. Yeah, I discussed this
6 quite a bit between the group of us in the Corps of
7 Engineers regarding whether or not we could actually put in
8 the concentration levels into the regulations. And one of
9 the things that we discussed was that in the decommissioning
10 rule, the 25 mrem, you're talking about a specific site that
11 you're leaving where you can do site-specific dose modeling.

12 What we're doing here for free releases, we don't
13 know exactly what site we're going to. So we have to make
14 industry-wide generalizations for our models.

15 So if we all agree on what generic models, for
16 recycling or that, that we have, then we can actually
17 calculate the concentration numbers out and put those into
18 the regulations.

19 So that's where I see the difference between the
20 decommissioning rule where you can have site-specific dose
21 modeling, but yet for this type of release for a clearance,
22 it really doesn't make sense. Because you don't know what
23 site you're sending stuff to.

24 MR. CAMERON: Okay. Thanks, Brian. Let's go to
25 Rich and then we'll go to Bill.

1 MR. BURKLIN: Rich Burklin. Just one comment on
2 what you said, although I largely agree with you. You're
3 going to have different types of material. So if you set
4 one concentration, what material is that going to be for?
5 If you set it for the most restrictive material, is that
6 what you're planning to do? You've got to be able to take
7 into account different types of material.

8 MR. CAMERON: Okay. Let's go to Bill and then
9 we'll go back over to Ed, to address this issue.

10 MR. KENNEDY: This whole conversation is kind of
11 deja vu from the N-1312 develop stage, because whatever
12 everybody said is correct. There are some points of view
13 that say that dose basis is the most scientifically correct
14 and the best way to do it. From a practicality point of
15 view, if you can have a look-up table, it's the most cost
16 effective point of view. But a dose-based rule may not be
17 broad enough to handle some situations, and a
18 concentration-based rule may not be broad enough to cover
19 all types of materials and situations.

20 That's why given the horns of the dilemma, the
21 ANSI standard attempted to hit it in the middle, and provide
22 you with a dose-based number and default criteria which we
23 believe are rather pessimistic and conservative in terms of
24 screening values, but allow the end user the option to think
25 it through with the regulator and say, yeah, these

1 concentration values will apply to my situation. We can
2 detect and we can live with them. Or say, "You know, this
3 really wasn't encompassed by ANSI standard. We have such a
4 unique situation that we need to hire a modeler and do our
5 own thing."

6 We recognize it may not be cost effective for
7 everybody to hire the modeler and it may cause more
8 confusion than it's worth, so there is merit in having
9 criteria in terms of concentrations, both for surface and
10 volume, that would apply. But we also realize that if they
11 aren't pegged to a single dose number, then they don't have
12 any credibility, either. So we've tried to hit the bull
13 right in the middle of the horns and do both.

14 Now, I would just end there, I think.

15 MR. CAMERON: Okay?

16 MR. BAILEY: I just wanted to point out that when
17 we talk about this concrete and disposing of it, that one of
18 the most volume-effective ways of municipal landfills and so
19 forth meeting their recycling value is to take all concrete
20 that comes in and chop it up. And so that in many of our
21 landfills now we are not seeing any concrete end up in that
22 landfill. It really gets recycled out to be used as
23 aggregate for the next slab that's going to be poured.

24 MR. CAMERON: Okay, thanks. Let's hear from Jaz
25 and --

1 MR. DEVGUN: My comment is back to Bob Nelson's
2 comment on 25 mrem -- the application of 25 mrem on the
3 license termination rule. I think the way it will be
4 applied in the field is, of course, through evaluation of
5 DCGLs, and site-specific. Somebody already mentioned that.

6 But I think there's a little bit of disconnect
7 with what we are doing with this clearance of the materials,
8 or release of the materials. Because if there's a resource
9 value to the material, like for steel or for metals, we need
10 the release standards. But for concrete, where I, you know,
11 as an end-user in the industry may make a decision that it's
12 going to be more costly for me to try to do anything to
13 release that material, I might as well treat it as part of
14 the site, and release it under 25 mrem DCGL.

15 So I think that's an issue which needs to be
16 addressed, because any of this clearance or release of
17 materials going to be on a lower dose-based value, not 25
18 mrem. So that disconnect needs to be looked into.

19 One very quick clarification related to Debra's
20 point was, RG 1.86 values, yes, they are pretty close to --
21 if you translate them to 25 mrem. Because look for cobalt,
22 for example, we have a value of 280 or so, a DPM per 100
23 centimeters squared. And that's based on one mrem, I guess.
24 So if you take it 25, it's close to 5,000. So they are
25 comparable to that.

1 MR. CAMERON: Okay. Thanks, Jaz. Let's have one
2 more comment from Brian. It's going to be quick, right?

3 MR. HEARTY: Yes. This is Brian Hearty.

4 Basically my comment was on what Bill was saying
5 about that middle ground, where you come up with maybe
6 having to do some additional modeling. That's almost an
7 implementation question I have to the NRC. Then it becomes,
8 does that need pre-approval of your new model or is that
9 something you can do on inspection, and check to make sure
10 that they modeled it correctly? That's another thing that's
11 going to need to be looked at, if that type of an approach
12 is chosen.

13 MR. CAMERON: Okay, thanks.

14 Andy?

15 MR. WALLO: Just two quick things to stress the
16 uniqueness of some situations. I mean, we've had requests
17 for authorized limits for the release of high explosives.
18 And that's a different scenario than any recycling of metal
19 or concrete -- typically, anyway.

20 The other comment is on the statement that Reg
21 Guide 1.86 is about 25 mrem, the one thing you have to
22 recognize about Reg Guide 1.86 is that it comes tied to a
23 very stringent measurement protocol and you really can't
24 have -- what most scenarios do is calculate the dose based
25 upon 5,000 DRPM for 100 square centimeters over a building

1 or a room. Practically -- in practical sense, you can't
2 have that. But it requires under the standard that every
3 square meter of the facility be averaged below the 5,000,
4 and that no 100 square centimeter area in each square meter
5 is more than three times that value. What that leads to is
6 a very much lower average concentration for a room.

7 And so one of the things I think we need to keep
8 note of is that depending on how stringent your measurement
9 protocols are defined in a standard, it means that if you
10 say a standard is "X" or a concentration limit is "Y," it
11 could be a much lower dose if you have an averaging
12 procedure that's greater or lesser.

13 So it's something to be very careful about in
14 deciding how you deal with the measurement protocol. Not
15 just the sensitivity, but how you measure and average.

16 MR. CAMERON: Okay. Well, thank you. I think
17 we're going to move on here. And by summary I think this
18 last discussion was really good, if a little esoteric for
19 the lawyers in the room.

20 MR. ESSIG: Chip, could I offer one quick comment,
21 just for thought?

22 The suggestion was made earlier -- the question
23 was raised, "Do we want to have a dose-based standard" --
24 that is, the dose itself and the concentrations which -- on
25 which it's based -- in the same -- or "also in the

1 regulation?"

2 I would just offer that -- I think many of you can
3 appreciate that are knowledgeable of the rule making
4 process, is it's a very deliberate process. It takes a lot
5 of time and a lot of resources. And if you put something
6 like concentrations in a rule and then you, in the future,
7 decide that you have better information or it needs to be
8 changed, then it takes a rule to change the concentrations.

9 And so we just offer that for thought, for those
10 who think that maybe that would be the -- is the best way to
11 go.

12 Now, of course, we do have precedent for that
13 currently in Part 20, where we have concentrations in
14 Appendix B for effluence, which are dose-based. You can
15 relate them generically to 50 mrem, and gaseous and liquid
16 effluent pathways.

17 So we do have some precedent for codifying actual
18 concentrations.

19 MR. CAMERON: Okay. Thanks, Tom.

20 I just wanted to emphasize that we did raise two
21 issues here that are going to be discussed in another
22 presentation, and they're very important issues because they
23 relate to implementation issues connected to whatever
24 alternative is selected. And we're going to go next to
25 Frank Cardile to talk about at least the identification of

1 the alternatives.

2 One of them is -- and, for example, Paul mentioned
3 the whole idea of restricted use. What's the role of
4 affected tribal state or municipal governments in any
5 restricted use or release of materials scenarios? That's
6 going to be extremely important in terms of the
7 acceptability of whatever approach is decided on here.

8 And, of course, there's the whole detectability
9 issue that Paul raised.

10 Now, we were supposed to break at 3:00, after this
11 session. We've only been here -- we're early, which is
12 unusual. And we've only been here back for a little more
13 than an hour. So if it's okay with Frank, could we put you
14 on now? And then after -- maybe we won't get through the
15 whole discussion, but we can break.

16 Mike, Barbara, anybody -- is that okay with you
17 guys? All right.

18 Well, thank you very much, Tony. Thanks, Tom.

19 Okay. Frank is going to talk about alternatives
20 and other alternatives that we'll address with the others,
21 too. And I'll just turn it over to him.

22 MR. CARDILE: Okay. Thank you, Chip.

23 Okay. We've just spent the previous discussion --
24 or previous session discussing NRC's current approach for
25 control of solid material. NRC is also examining other

1 approaches that it could use to effectively control solid
2 materials. And it's developed a preliminary list of broad
3 alternatives.

4 As we've been discussing here today, and as
5 discussed in the issues paper, all of the alternatives that
6 we'll be talking about today and all of the alternatives
7 that you may suggest to us are on the table for discussion.

8 The purpose of this session is to explain the
9 broad alternatives, to make sure that they are clear in
10 everyone's mind, and to explore other alternatives that we,
11 the NRC, may not have thought of. The three sessions that
12 will follow this one will explore in some detail how we
13 would evaluate potential alternatives.

14 In the first alternative listed, NRC would
15 continue its current methods for controlling releases. That
16 is, surveys based on existing guidance. The limitations
17 associated with this approach have been discussed just now
18 in Session 3. And, as also noted in Session 3, this
19 approach would continue to result in the release of some
20 materials.

21 To formally establish a criteria for control of
22 solid material, NRC could go through a formal rule making
23 process with the analysis of health and environmental
24 impacts, analysis of economic issues, and invitation for
25 enhanced public comment. In such a process, three broad

1 levels of control on the materials could be considered
2 which, as noted in the issues paper, would range from
3 permitting monitored release at some low dose level to
4 potentially not permitting release. We're going to explore
5 those three broad levels of control now.

6 In one alternative, a dose level could be set in a
7 regulation below which materials could be released for
8 unrestricted use by the public. The rationale for this
9 alternative, I think as we talked about a couple of times --
10 as Trish opened up by talking about -- is that it would
11 allow some productive use of this material if radioactivity
12 levels are low enough to be considered safe, rather than
13 just throwing the materials away.

14 In this alternative, before any material is
15 released, it would be monitored to ensure that it met the
16 regulations. It could then go anywhere, including a scrap
17 yard to a steel melter and manufacturer, and then on to any
18 unrestricted public use, including into consumer products or
19 to any industrial products. Material above the criteria in
20 the regulation would go to a licensed low-level waste
21 disposal facility.

22 Within this alternative there are sub-options.
23 The levels at which material are to be monitored could be
24 set at progressively more restrictive dose levels, including
25 those noted in the issues paper, such as 10 mrem, one mrem,

1 or 0.1 mrem above background, or at a dose level -- or a
2 monitored dose level that is no higher than background or
3 could not be distinguished from background.

4 A second alternative could also be to set a dose
5 limit in the regulations, but this one could restrict where
6 material could go to only certain authorized uses. For
7 example, girders in a bridge or some industrial product.

8 An advantage of this alternative, as compared to
9 the first one, would be that it could make some use of the
10 solid materials, but could limit uses to those that were
11 less likely to cause public exposure.

12 To make this alternative work it may be necessary
13 for NRC to issue a license to those persons receiving the
14 materials -- for example, a scrap yard owner or a steel
15 manufacturer -- to ensure that the material only went to its
16 restricted use.

17 A third alternative could be to establish in a
18 regulation that solid materials from areas where radioactive
19 material was used or stored would not be monitored, but
20 would rather, based on the fact of its location in the
21 facility alone, not be allowed to be released for either
22 unrestricted or restricted use. But, instead, sent for
23 disposal to a licensed low-level waste site.

24 A rationale for this alternative is that there
25 would not be a release of solid materials from these areas,

1 thus removing certain concerns about allowing such materials
2 into products for public use.

3 This list that I've just run through is not meant
4 to be all-inclusive, and, as you can see, we have listed
5 other alternatives that are proposed at these meetings or in
6 written comments or in e-mails to our website. These may be
7 suggestions for other alternatives that we have not thought
8 of, or variations of the alternatives that we have proposed.
9 Each of the alternatives have pluses and minuses. The
10 purpose of our examination and the purpose of any rule
11 making effort is to evaluate all health and environmental
12 impacts and economic impacts in an open forum and to
13 evaluate the trade-offs these three alternatives -- not only
14 the ones we've listed here, but the ones we will discuss in
15 this meeting and in the follow-up meetings -- so that all
16 the trade-offs can be evaluated and an informed decision
17 could be made that protects public health and safety and
18 serves the interest of the country.

19 So what we're here today, right now in this
20 session, is to make sure that we're all on board -- or at
21 least on even keel -- with regard to a knowledge of these
22 alternatives, and also to explore other variations on these
23 alternatives. We've kicked around a couple already this
24 morning, restricted use has been brought up, which we have
25 certainly a variation of on in our list, and also to invite

1 any other alternatives that we have not, perhaps, put up on
2 our list.

3 MR. CAMERON: I like that "on an even keel in the
4 sea of radiation."

5 Do we have some questions? What we'd like to do
6 -- or what we'd suggest doing in this particular session is,
7 first of all, to clarify anything about the alternatives
8 that Frank has presented. But, most importantly, to get
9 ideas from you on other alternatives, variations on these
10 alternatives. We're going to go into sort of an evaluation
11 session in our next two presentations. So we don't need to
12 get too evaluative here, but you might want to offer
13 something on that.

14 But are there questions for Frank on the
15 alternatives that he laid out?

16 MR. LEWIS: I'm Mark Lewis from San Onofre.

17 The option that catches my eye, first, of course,
18 is establishing a regulation that would not permit the
19 release of materials that had been in an area where
20 radioactive material had been used or stored.

21 You know, the practical implications of that are
22 staggering for me and my 30 acres and 2,000 people who all
23 work and live in an area where radioactive material is used
24 and stored.

25 Would the NRC have authority? You know, in

1 practical terms, would the NRC actually have authority to
2 implement a rule like that? I realize that's one that has
3 to be put up there as an option, can you make me leave my
4 shoes at work? And can we take that to the obvious
5 extensions that it's going to have to go to if that were
6 actually the rule? It seems to me that it lacks rational
7 basis and it's impractical to the extent that it's just not
8 implementable.

9 MR. CARDILE: I think --

10 MR. CAMERON: Okay. Now, we're getting a little
11 bit -- you know, evaluative. That's fine -- just slightly.
12 But if there's -- there's a question there that's -- I guess
13 there's a question that's raised here, and there's also do
14 we -- do you think, Frank, that there's a good
15 understandable out here of exactly what that alternative is?
16 And I guess it's a question for Stu, about the authority.

17 But, Frank, let me throw it back to you. What's
18 your reaction?

19 MR. CARDILE: I think on a simple basis what we're
20 talking about -- for example, if you had rooms in an
21 auxiliary building where you would go into that auxiliary
22 building and the piping and the tank and the heat exchanger
23 are in that room, under the first option you could go to
24 that piping or tank or heat exchanger and survey it and
25 determine that it was below a certain dose level.

1 Even a dose level as low as indistinguishable as
2 the background, you would still have the option to survey it
3 and confirm that it was, indeed, indistinguishable.

4 In the last option listed on that table -- and
5 that's why I said that it's based on the fact of its
6 location -- you would go perhaps into the room in the
7 auxiliary building and say all the material -- all the heat
8 exchangers, tanks, and pipes in this room go to low level
9 waste, there would not be a survey made.

10 We haven't -- I think when you carry it to the
11 extension of what about -- I think Trish talked about
12 earlier, a clean warehouse building or a control room or a
13 hospital waiting room, I don't think we've carried it to
14 that point. The option we put on the table -- both here
15 today and in the issues paper -- is to look at -- like I
16 said, a room in an auxiliary building, for example, and say,
17 "All right. The material in that room, based on its
18 location, goes to low level waste." And that's the option
19 that's on the table -- or an option that's on the table.

20 MR. CAMERON: Okay. Are you done, Frank? I'm
21 sorry.

22 Stu, do you want to hear a little bit more of the
23 discussion before you answer the question about whether Mark
24 has to leave his shoes at work?

25 MR. TREBY: No, we'll venture where other people

1 would fear to tread.

2 First of all, a comment with regard to the
3 alternative up there. In an earlier slide, I understood
4 that there were indications that there were three different
5 places where radioactive -- where that might be involved
6 here. Two that are mentioned in this alternative here, but
7 the other one was a totally clean area, where -- such as a
8 reception area in a hospital or something like that. And,
9 of course, those things could be -- were not included in
10 this alternative.

11 As far as authority? I wouldn't be worth my salt
12 if I didn't think we had very broad authority. And, as a
13 matter of fact, I think that the Atomic Energy Act is an act
14 that gives us very broad authority to protect public health
15 and safety. And if it was necessary to protect public
16 health and safety for you to leave your shoes on-site, I'm
17 sure we could come up with an argument that said that we had
18 that authority to do so.

19 MR. CAMERON: Okay. Thank you, Stu. I think Mike
20 has someone over there, and we'll go to Roy after that. And
21 could you introduce yourself to us, sir? I don't think that
22 we have heard from you yet.

23 MR. TURNER: My name is Jim Turner. I'm with
24 Ameristeel Corporation. I'm not related to this Turner,
25 other than, I guess, our companies work together somewhat.

1 In fact, I didn't know about this meeting until
2 yesterday. I was out to Envirocare in Utah -- and they are
3 nice people. But you've got to go out there, because
4 they're not particularly cheap.

5 And I guess when I first raised my hand, I wanted
6 to -- my comment was that there seemed to be a large gap
7 between the third alternative and the fourth alternative,
8 which is not allowing release of materials or people or
9 whatever, just because they were in the area of radioactive
10 contamination.

11 But that's been addressed. And what I'd like to
12 say beyond that is in the -- I think it was the second
13 alternative or the third, where you're going to have
14 restricted release of consumer materials for bridge,
15 structurals or whatever. You have to go back to the steel
16 mill itself, or the scrap yard -- or whatever. And when you
17 melt that scrap, you generate dust and you generate steel.
18 You're also going to continue to generate more radioactive
19 material, like the dust. You're not going to just generate
20 the dust that's radioactive from that initial melt,
21 subsequent melts will be also slightly radioactive. And
22 that, I think, has to be considered. You're going to
23 generate new material. I'm not saying that's bad or good,
24 but the steel mills will need some release -- will need a
25 lot of release on subsequently-generated radioactive

1 material from the result of this regulation.

2 MR. CAMERON: And that's a point I haven't heard
3 before. Jim, I would ask you to raise that again, too, when
4 we come back to the impacts discussion, so that we don't
5 lose sight of that, and we can have some discussion on it.

6 I think Roy has been waiting.

7 BARBARA: I didn't hear. What did he say about
8 the end product?

9 MR. TURNER: -- they generate a dose of dust. You
10 may not have any radioactive scrap in it, but you're still
11 going to generate more radioactive dust, albeit very
12 slightly radioactive, because there's residuals in there.
13 And unless you go in and completely decontaminate the
14 furnace, the refractory, the duct work -- and that can't
15 really be done. Well, it can be done and it costs just
16 about \$4 million in Jackson, Tennessee.

17 MR. TREBY: Well, as follow-up, and as you said,
18 Chip, it would be really good to discuss this during the
19 impact session. But I guess what would be useful to learn
20 about during that session is at the levels we're talking
21 about here -- or the range we're talking about, potentially.
22 Will there be significant or a contamination that's dust
23 that you can see or we talking more like the types of
24 problems we've had in the past with seizing sources that
25 have been lost?

1 MR. CAMERON: Okay. Let's make sure that we have
2 this discussion, and we'll have it in the next session.

3 Roy's been waiting.

4 MR. BROWN: Roy Brown with Correr. I'm sorry, but
5 we really need to be practical here. This differentiation
6 between restricted and non-restricted really troubles me.

7 Frank and Stuart, we have 13 million diagnostic
8 nuclear medicine procedures a year done in restricted areas
9 using unsealed materials. Are you telling me all of these
10 13 million people and their families, we're not going to be
11 able to release them back to the environment -- I mean back
12 to the public? I mean we really need to be practical here.
13 I mean there are situations where radioactive materials are
14 used safely with very, very low risk in restricted areas 13
15 million times a year, in the case of nuclear medicine.

16 MR. CAMERON: And keep in mind, too, that this
17 exercise is meant to identify possible alternatives. When
18 you go through and evaluate them, it may not be practical.
19 And what we want to hear about from all of you are factors
20 that address that. And I think we'll all take that comment
21 in that respect.

22 Frank, do you have anything to add to Roy?

23 MR. CARDILE: I appreciate what you're saying, and
24 we haven't really investigated the details. I think we're
25 talking here about people moving in and out of areas and

1 people coming in to work and coming home. And this is
2 something that we need to, obviously, be thinking about --
3 especially in the impact sessions and discussions of any of
4 these alternatives. Again, though, even in those
5 situations, moving -- the comment I made about the reactors
6 to perhaps laboratory facilities, you know, this -- whatever
7 it is, the third option -- whatever number it is -- third or
8 fourth, I'm not sure which it is on the list -- you could
9 potentially look at a laboratory situation and say if you're
10 going to release a chair -- for example, from inside the
11 laboratory, what do you do with that chair? Do you survey
12 it or do you just say that chair was in a hot area and,
13 therefore, it would have to automatically go to a low level
14 waste?

15 And that's what this option is. And those are the
16 things that we have to consider the practicalities of.

17 Now, there's different practicalities for
18 different types of facilities. There's one practicality in
19 an auxiliary building of a power plant and a different one
20 for a set of laboratories.

21 MR. CAMERON: Okay. Terry?

22 MR. CIVIC: Terry Civic from -- representing the
23 American Iron Steel Institute -- with my partner over here,
24 who was upset with the no-release -- or the not permit
25 anything release.

1 The steel industry opposes free release. And we
2 had an example of that with this letter that was distributed
3 to all the attendees. This is the perception we have to
4 deal with, that our steel that we manufacture will become
5 contaminated.

6 The other gentleman, the second Turner, we have
7 another issue there is that as far as if we melt something,
8 you know, how can we release it? And that gets back to we
9 talk about doses and dosage calculations. And as a member
10 of the public, the NRC has established a dose-based limit
11 right now at 25. That apparently was established using some
12 science behind that, and the risk assessments were probably
13 thoroughly done by the NRC. And as a member of the public,
14 I would trust that that was a valid risk assessment.

15 The difference becomes as to what we do with the
16 material, because the risk assessment said, okay, we're
17 going to dispose of this stuff in disposal sites. As
18 opposed to releasing the material for use by consumer
19 products.

20 And I think we have to look at what dose-base
21 means. Who's eventually going to get the dose and how much
22 are they going to get? So the current practice under 1.86
23 from a public perception standpoint looks to be fairly good,
24 if you don't free-release it.

25 So the question becomes if we change from a 25 to

1 a 1, how are we going to justify what we did in the past?

2 MR. CAMERON: That's a good question. We're going
3 to go to Mark, but I -- it might be useful for someone from
4 NRC to explain the relationship between 25, which is the
5 decommissioning standard -- and maybe this has already been
6 done -- but maybe to reiterate, what is the relationship
7 between the decommissioning standard and any standard that
8 might be set for a release of materials rule? Is that -- is
9 that your point, Terry?

10 MR. CIVIC: Yes.

11 MR. CAMERON: All right. Let's go to Mark, and
12 then maybe we can get someone from the NRC to address that.

13 MR. SOMERVILLE: Mark Somerville from PG&E, Diablo
14 Canyon.

15 I'd like to go back to the -- a look at the
16 alternatives and then talk a little bit about the 25 mrem,
17 also.

18 MR. CAMERON: Great.

19 MR. SOMERVILLE: There seems to be a logical
20 combining of a couple of the options. And that is after you
21 trigger some threshold, then you start to talk about the
22 restrictions that you place on the material, whether it's
23 designated to a certain pathway, like a bridge gird, or
24 whether it just has to go to a Part 61-type disposal
25 facility.

1 So it seems like those could -- once you've made a
2 decision that you're above some type of a numeric limit or
3 some type of a theoretical limit, then you've destined it to
4 a combination of those alternatives. You're going to make
5 -- you're going to hit the fork in the road after you've
6 already determined that some type of control is necessary.

7 MR. CAMERON: So you would -- you would combine
8 two of these?

9 MR. SOMERVILLE: Right.

10 MR. CAMERON: And then you might consider whether
11 there should be restricted -- does this get to the -- does
12 this get to Don Cool's point earlier that's up there, about
13 alarm? In other words, you might meet the limit, but you
14 could confine the material? I don't know how it's done, but
15 if you could use it in a restricted use, that that's where
16 it should go? I don't know, I'm asking -- I'm putting that
17 on the floor for everybody.

18 MR. SOMERVILLE: I think there's a place that you
19 could kind of get into that type of a discussion, and we're
20 required to do an annual review of the effectiveness of our
21 radiation protection programs. And within that, I think if
22 you -- if you look at plants that continuously release up to
23 some limit, as far as an annual postulated dose, and you
24 compare them to other plants who are consistently well below
25 that, there would be some type of industry pressure to --

1 even though you're below the limit, below the standard of
2 care, that you're not doing as well as your peers.

3 I think that if that type of a role making would
4 occur, plants would be tripping over themselves to have some
5 type of a performance indicator on the books that Impo or
6 somebody else would track and trend and we'd all want to be
7 in the first quartile. So we'd kind of take care of it
8 ourselves.

9 MR. CAMERON: And I want to make sure that we
10 capture that -- what I think is, you know, an alternative
11 there and characterize that correctly. So let us think
12 about that for a minute.

13 Did you want to say something about the 25?
14 Because we're going to go to Bob Nelson next to talk about
15 that, and then maybe we can come back and if you could
16 formulate your thought on it?

17 MR. SOMERVILLE: Before we leave that, I think
18 what we've put on the board is two sets of -- or two
19 options. One that would either say if you had a piece of
20 material, it would go to unrestricted release. There's
21 another way to do it, and that is to just say, no, the rule
22 would only permit restricted release.

23 This would be different than the -- as you may be
24 pointing out -- the licensed termination rule, where a
25 licensee has the option to say, "I've got land here, and I

1 can either release it for unrestricted release or I can
2 release it for restricted release." So that's an
3 interesting point, because a variation on the alternatives
4 that we're putting on the board here is to have an either/or
5 on the unrestricted or restricted for a clearance, similar
6 to the license termination rule. Or, as what's sort of laid
7 down on the -- up on the board here, and that is that you
8 can either release it for unrestricted or perhaps it might
9 be more, you know -- I don't know what the word is --
10 palatable, to only permit metals that are leaving a facility
11 to go to bridge girds or something like that.

12 So that's -- I think what I'm hearing is a
13 variation on the list here to be more like the license
14 termination rule, which would give licensees the option to
15 go to either unrestricted or restricted release.

16 MR. CAMERON: Mark, do you want to -- we're going
17 to come back to you and to Paul on this particular
18 variation. Do you want to just follow-up on Terry's 25
19 mrem, so that we can get Bob Nelson from the NRC to give us
20 the NRC take on that relationship?

21 MR. LEWIS: Sure. I think all I wanted to say is
22 that I have occasion to speak to the public every once in a
23 while about dose limits and the difference between activity
24 and dose and all of that. And one of the things that's hard
25 to communicate sometimes is that there are several different

1 limits that already seem to be on the books. In other
2 words, there's a Part 30 series limit that says if you're
3 below this activity for individual nuclides, that that is
4 all possessable under a general license. We also live with
5 the -- as a power plant, the tendency for Appendix I -- the
6 tendency for 50 Appendix I limits for gaseous and liquid
7 releases. We also have the EPA 4190 limits for doses.
8 Plus, we have 10 CFR 20 limits for direct exposure, and
9 other things -- occupational or non-occupational.

10 And it just seems that within all of that
11 guidance, the heavy lifting has been done with federal
12 guidance 11, with the appendices to 10 CFR 20, that give us
13 those conversion factors and facts and alleys and all of
14 that kind of stuff.

15 As a power plant we pretty much -- and as a
16 hospital or a teaching institution, we pretty much know what
17 nuclides we have. It doesn't take much from that point to
18 kind of do the math and crank out what we would have to
19 release or what would have to be available for release to
20 reach some kind of a dose limit.

21 But when you kind of throw that all out on a
22 table, it becomes very murky and very hard to communicate to
23 a member of the public which limit applies and why and how
24 it protects them.

25 MR. CAMERON: Okay. Thanks, Mark.

1 Let's go to Bob Nelson and then we'll come back
2 down to the back, to Rob and we'll get back on the
3 alternative.

4 MR. NELSON: Yeah, Bob Nelson. Before I try to
5 answer the question about the 25 mrem, I suggest that we
6 start a piece of wallpaper that has new alternatives,
7 because one of the things that we want to do is take in the
8 next couple of sessions, when we talk about impacts, and
9 we'll want to address the impacts -- not only these
10 alternatives, but any new ones that come around. So my
11 suggestion is that we have a sheet of wallpaper that just
12 lists any new alternatives that are developed. And we have
13 one of these at least already on the paddock.

14 Now, for the -- to the license termination rule,
15 or the decommissioning rule, the license termination rule is
16 not a clearance rule. It's not intended to address releases
17 of equipment, pumps, motors, piping, small volumes of soil,
18 or other waste products. It is a land and structures
19 decommissioning rule. It looked at the release of a
20 building, used a very conservative building occupancy
21 scenario. It assumed that people would reuse the building
22 and/or reuse the land in the form of a resident farm. So
23 we're looking at really something entirely different in
24 clearance. We're looking at probably releases of smaller
25 volumes of soil, which would not be used in a large resident

1 farm, but would be possibly small volumes released and moved
2 off-site for some other purpose. And releases of other
3 materials, of the types that I've mentioned. So there's two
4 entirely different concepts here and two entirely different
5 analysis approaches that would be applied.

6 MR. CAMERON: Bob, do you want to elaborate on
7 what Nelson just said here?

8 MR. MECK: Bob Meck, NRC. With the clearance of
9 -- or the license termination of lands and structures,
10 there's a fundamental difference than for clearance of
11 materials and equipment. And that is that lands and
12 structures stay in one geographical location and a
13 particular individual can only be in one location at a time.

14 On the other hand, with the clearance of materials
15 there's the concern of exposures from multiple pathways --
16 or multiple items, I guess I should say, at the same time.
17 For example, you may have in your house several kinds of
18 consumer goods that were downstream of a clearance action,
19 or something. So there is that fundamental difference.

20 I think we have to admit at the NRC that there is
21 an interface between decommissioning and license termination
22 of structures, at least -- and perhaps soils -- in that, you
23 know, we're certainly aware that you could terminate a
24 license one day for a structure, rebelize it the next day,
25 and the question is does that have the same dose criteria as

1 something that -- as concrete, for example, that would be
2 cleared?

3 We haven't completed that analysis yet. But I
4 want to assure you that we're aware of it and we have to
5 look at it. My gut feeling, as in -- and my professional
6 guess -- would be that by rebelizing a building and given
7 the nature of how radioactivity distributes on surfaces and
8 not very far into the interiors of concrete, that the
9 dilution of that -- caused by that rebelization would
10 probably bring the practical levels down to at least
11 comparable to that that we're thinking of about clearance.
12 And so that's something that we do have to address. We have
13 to take a look at that interface.

14 I'd like to answer one more question that came up
15 just a little bit earlier, and that's who will be protected?
16 And I can tell you that for the technical information that
17 we're generating, it's a two-pronged approach. The first
18 was what would be the most likely maximum person to be
19 exposed by such a clearance action? In our analysis in 1640
20 it was quite often the driver of a truck that would be
21 carrying the materials away from the generator of cleared
22 materials, for example. And the other prong of that
23 approach is to look at the entire population as a whole, not
24 just those few truck drivers, for example, who are the most
25 exposed, but to look at the total impacts to the population.

1 So it's a two-pronged approach.

2 MR. CAMERON: Okay. Thanks, Bob. I think Rob,
3 you wanted to say something on the relationship between dose
4 levels, and then I think that we want to try to get back
5 onto the alternatives. But, go ahead, Rob.

6 MR. HOLDEN: I just thought it would be worthwhile
7 to emphasize that the confusion that people may have about
8 these various dose levels all fall from -- derive from the
9 fact that on the basis of radiobiological data, all of these
10 are hypothetical risks and that, you know, the issue that
11 most people are concerned about is that radiation is going
12 to cause them to get cancer. And all of us who are students
13 of radiobiology know that there's no data whatsoever in
14 humans that you can induce cancer with dose -- pop doses of
15 radiation under 100 rads.

16 And so all of the risks that we're talking about
17 here are, you know, tremendously hypothetical, and that's
18 why you have a whole bunch of arbitrarily chosen dose risk
19 levels, and we need to always remember that these are
20 theoretical, hypothetical. They have never been
21 demonstrated in terms of, you know, human actually
22 developing real damage as a result of radiation exposure at
23 these levels.

24 As a matter of fact, there's a fairly large body
25 of data that's emerging that supports this concept of

1 hormisas, that shows that the repair mechanisms in human
2 beings actually are enhanced by low levels of radiation.
3 And that actually they might be protective in some ways.
4 And there's a fair amount of data that supports that.

5 We never talk about that, but that's emerging and
6 there's a growing body of scientific data supporting that,
7 which would totally change the whole concepts that we're
8 espousing here in terms of relative risks. You might
9 actually have steel come out labeled "radiologically
10 enhanced," a term I heard earlier today which was
11 interesting as a positive thing.

12 MR. CAMERON: Does anybody want to -- I was going
13 to go on to Paul for alternatives, but perhaps -- does
14 anybody want to offer any grains of salt, so to speak, on
15 Rob's comment about -- that he just made, the grains of
16 salt? All right, Bill?

17 MR. KENNEDY: I couldn't agree more with the
18 statement that these are all theoretical end points, but on
19 the other hand in trying to look at the information, it does
20 cause a lot of confusion.

21 The numbers that you have in your theoretical
22 approach from point one to 10 mrem, if you rely on modeling
23 are all the same number, because of the potential
24 variability of the scenarios and the uncertainty of the
25 doses that are produced. So that is a concern that you have

1 when you try to set or regulate at limits this low.

2 MR. CAMERON: Okay, thank you. Let's go to Paul,
3 who's been waiting over here. He has to go back to his
4 microphone, he can't speak from there.

5 MR. GENOA: Paul Genoa, NAI. I wanted to follow
6 up on the thread, as you call it, of the conversation that
7 Mark started and Frank commented on. And that is on the
8 alternatives. And I believe there is a natural marriage
9 between the second and third alternative. And I just want
10 to make sure that that does get captured.

11 And the concept there is that one would establish
12 a criteria, whether it's by dose or by instrumentation or
13 detection -- whatever it is. But it would be a criteria
14 that says that we need to do something or we don't need to
15 do something. And then that would be married, then, with
16 the opportunity that once you determine you need to do
17 something, what are the things you could do? And the
18 linkage to what you were talking about, Frank, and the
19 license termination rule is you have a choice there. Let's
20 say that we picked a dose-base limit, and let's say that it
21 is one mrem. You would evaluate a material. If it didn't
22 meet a mrem, you could do whatever you want with it. If it
23 was in excess of a mrem, well, you could perhaps look at
24 different alternatives in a restricted scenario that would
25 still ensure that the maximum exposure would be less than a

1 mrem by imposing restrictions, just like when you terminate
2 the license of a facility, you're going to assure 25 mrem.
3 You can do it in an unrestricted approach or in a restricted
4 approach, relying on institutional controls.

5 The dose is the same. It's just now you're going
6 to impose restrictions or institutional controls.

7 MR. CAMERON: Okay. I'm glad you said that. Let
8 me make sure that we all understand what Barbara has up here
9 as this restricted/unrestricted. One take on that is what
10 you just suggested. And, indeed, that is -- at least as far
11 as we have up here, that's a new alternative.

12 Is there -- is that the only
13 restricted/unrestricted option that we have talked about or
14 was there -- I wasn't sure whether Mark was suggesting that
15 there was something else there, besides this -- well, give
16 us the option to try to do something that would meet it. I
17 just want to be clear on that. I'm not clear on it myself.

18 And, Mark, just let me ask you. Is what Paul
19 described what you were thinking about?

20 MR. SOMERVILLE: Yes.

21 MR. CAMERON: Okay, great. All right.

22 Let's go to -- let's go to Mark, and then we're
23 going to come over to this side of the room.

24 MR. SOMERVILLE: I have a less evaluative
25 suggestion than my last one. Presently under the present 10

1 CFR 20 requirements, I'm actually not required to perform
2 radiation surveys of all solid material leaving the
3 restricted area. In fact, we survey very little of what
4 leaves the restricted area, because we can perform
5 evaluations of everything and just survey those things that
6 are likely to be contaminated.

7 We need that remaining option in this rule making,
8 as well, because if there's going to be exotic survey
9 requirements for all solid material leaving the restricted
10 area, you know, I'll certainly be doing that for materials
11 that are likely to be contaminated. That's one truck out of
12 every 200 that leaves the protected area every month. And
13 the other 199 that contain these things that are very
14 unlikely to be contaminated, I don't presently perform
15 radiation surveys. And I certainly won't want to have to do
16 that in the future.

17 So perhaps that went without saying, but when we
18 talk about what kinds of solid materials are going to be
19 evaluated and surveyed and how they're going to be evaluated
20 and surveyed, we need to remember that many of them
21 presently are not at all. And we need to maintain that
22 flexibility. Because, in fact, just like my shoes -- and
23 most of what leaves the protected area doesn't need this
24 kind of work.

25 MR. CARDILE: And I think we've talked about that

1 in-house. I'll let Tony jump in, if I misspeak -- but we've
2 talked about the fact that there's a combination process --
3 we've talked about it in-house, back in our state -- that
4 there's an evaluation process that's either based on
5 knowledge of where the material is and/or, you know, survey
6 it in other areas where you need to do surveys. And so I
7 would think that same philosophy would carry forward in the
8 future.

9 MR. CAMERON: So it's more of an implementation
10 issue connected to an alternative, rather than an
11 alternative --

12 MR. SOMERVILLE: And as a matter of fact --

13 MR. CAMERON: -- in and of itself.

14 MR. CARDILE: And as a matter of fact, in Session
15 7, Tony will get into some of those points.

16 MR. CAMERON: Okay. Tony, do you want to say
17 something quickly now?

18 MR. HUFFORT: Yeah, this is a nuance. I don't
19 have Part 20 in front of me, but the word "survey" in Part
20 20 means an evaluation. The word "radiation monitoring" is
21 also defined in Part 20.

22 And when I think of radiation monitoring, that's
23 taking a hand-held survey instrument and running it over
24 this table to see if there's contamination present, or
25 taking this glass and running it through some kind of box

1 counter. That's radiation monitoring.

2 Surveys, according to Part 20, can be monitoring
3 or an evaluation. So if we were to change Part 20's
4 definitions, that would be part of the rule change.

5 MR. CAMERON: Okay. Thank you, and we have this
6 listed in a couple of different places.

7 Let's go to -- oh, Andy, you've got a mike. Good.

8 MR. WALLO: I was going to try to expand or
9 discuss a little more the restricted use. I think it was
10 Terry's comment, but I think we have more than one
11 restricted use. I hear discussion here talking about a
12 restricted use that I would look at as a first-end use kind
13 of restricted, where somebody said a bridge or a railway
14 track. Well, once you do that restriction, you ensure that
15 the recycled material gets into the battery, gets into the
16 railway track, gets into the bridge, you're done. It is
17 released material. And the next go-around, that material
18 can either end up in the landfill or back into a mill again,
19 and you've lost control of it.

20 I kind of got the impression that Terry's
21 suggestion on restricted use was more continued or permanent
22 restriction, where he would be suggesting that it be used in
23 waste containers and go to a waste site or that it might be
24 a restriction that may be at another nuclear site, something
25 like that.

1 So there's kind of different levels of restriction
2 that might be proposed here.

3 MR. CAMERON: And, Barb, can we flip over to our
4 alternative sheet here? And I think that if I can use --
5 and if I'm not using this terminology correctly, tell me.
6 But the one alternative is first use/restricted use. Would
7 that be -- first use/restricted use means that you only
8 restrict it for one step after it comes out of the process,
9 and after that it could go anywhere?

10 And, Ray, I'm going to go to you in a second for
11 clarification here, and we can fix this.

12 The next alternative would be a permanent
13 restricted use?

14 MR. TURNER: I don't know what was envisioned. I
15 think I recall that it has to do with controls.

16 MR. CAMERON: Barbara, why don't you put
17 "continued control/restricted use," okay? For now. We can
18 -- we're making progress. We can refine this stuff later,
19 but -- okay. Well, good. And let's hear from Ray now on
20 this.

21 MR. TURNER: One very, very important point in
22 understanding the recycling business. We're talking about
23 -- I've heard a lot of conversation here about bridge beams
24 and things like that being made out of some material that's
25 been released, and then subsequently those materials when

1 they're recycled become a part of another mill.

2 It's important, also, to understand a lot of those
3 materials are never remelted, such as railroad rails and
4 parts of those bridge beams are actually re-rolled into
5 other materials as they're recycled. They're not melted at
6 all. So it's important to realize that it has to go beyond
7 first use restriction. You've got a railroad rail or even a
8 bridge beam, it's probable that that material will be
9 re-rolled without melting down at all and formed into
10 another product.

11 MR. CARDILE: Well, that's one of the things that
12 we'll talk about in Session 3, and that's one of the things
13 that we have to grapple with is first use is only -- as you
14 point out, is only for a certain length of time. And if you
15 have Cesium 137 or uranium -- obviously uranium -- but
16 Cesium contamination, what happens next? What control do
17 you exercise after the bridge is torn down?

18 MR. CAMERON: Okay. And Frank's right, we will
19 revisit that impact.

20 How about other -- how about other alternatives
21 here? Let's go to Bill Kennedy and then we'll go to Jim
22 Turner.

23 MR. KENNEDY: The point here I think I'd like to
24 make is that when you talk about restrictions, there are two
25 kinds of things to remember. One is it's a commitment of

1 some regulatory authority to make sure that whatever
2 restrictions defined is maintained, be it a first use or an
3 ultimate all use.

4 Secondly, the gentleman here made the comment
5 about the impact on the steel industry. What essentially
6 you're doing is assuming that there will be a separate but
7 equal sector of the industry set up that will handle
8 contaminated materials in whatever manner that's described.
9 And that may or may not be economically feasible. It may
10 not be that the volume of the steel and the types of
11 restrictions would permit economic recovery of any
12 investment in a separate but equal industry.

13 Also, in parallel you talk about the
14 decommissioning standard and the restricted use condition of
15 a site, but there were financial limitations on that. So
16 that if something went aride, the situation could be
17 recovered from. You would know that there's a sinking fund,
18 that if controls for some reason were lost and contamination
19 was spread, it could be recovered within the restrictions of
20 the program.

21 I would caution that, you know, the same thing
22 might have to be valid here. That just thinking you went to
23 a bridge doesn't mean ultimately that it stayed a bridge and
24 you wouldn't have to go back and attempt to recover frying
25 pans or something from somebody that recycled that bridge

1 without -- and broke the restrictions, in other words, in
2 advance of the conditions that were imposed.

3 MR. CAMERON: Okay. I think that's an instructive
4 point, which again goes to Tony's implementation session.
5 That you could have a first use if you could maintain some
6 control or monitoring on that.

7 Paul? Well, I guess I'll tell you what. It's
8 3:30. Why don't we take a break and we'll come back and
9 we'll finish this discussion and then go to Giorgio for his
10 presentation.

11 Thank you.

12 (Recess.)

13 MR. CAMERON: We wanted to make sure that we had
14 identified as many alternatives or variation of the
15 alternatives as possible.

16 And what I'd like to do is just go out there and
17 let's see how many other alternatives there are. Not get
18 into a big discussion of them, except if we -- you know,
19 just to make sure that we understand the alternative. And
20 I'm going to go to -- I think Paul, from General Atomics,
21 and it may not have been. But this morning, whoever talked
22 about material-type -- and I threw in graded levels, I
23 think, Paul Genoa might have mentioned that. But is that --
24 is that an alternative that we should put up there? In
25 other words, it isn't listed on Frank's alternatives. That

1 you only confine it to certain types of materials, or you
2 limit it somewhat. Someone mentioned the term "pilot
3 program."

4 Paul, I don't know, am I putting words in your
5 mouth?

6 MR. GENOA: It wasn't me.

7 MR. CAMERON: Okay. Terry, was that --

8 MR. CIVIC: That was me.

9 MR. CAMERON: All right. Do you want to talk a
10 little bit about -- or just --

11 MR. CIVIC: Well, my thought was -- and it was
12 only a thought -- that, as an example, the steel industry is
13 opposed to the free release. Now, if this concrete -- you
14 could treat that differently than the steel, because the
15 steel gets in to the consumer and you have the consumer
16 problem to deal with. Whereas, possibly the concrete or
17 some other material that you may have that would not get
18 into the consumer realm could be treated differently.

19 So that's what I meant by treating the material
20 differently.

21 MR. CAMERON: Okay. So in other words, that would
22 be to establish different regimes for whatever the material
23 might be, okay.

24 Is there any -- does this give anybody any
25 creative ideas on alternatives that we haven't thought of?

1 Jim?

2 MR. TURNER: I don't know how great it is, but --

3 MR. CAMERON: Okay. Here, let me give you this.

4 MR. TURNER: And I never thought I'd hear me
5 saying this, but if you look at it the way EPA regulates
6 substances, which I think they do a very good job -- what do
7 they have, hundreds of thousands of chemicals and they've
8 got standards for each chemical, and they've got standards
9 for each chemical based on where it's at or what it's going
10 to be -- what's going to happen to it. They've got a
11 standard for ground water. They've got a different standard
12 for surface water, for the same chemical, perhaps. They
13 have a different standard for drinking water. And I guess
14 -- I'm not saying it's necessary to do that, but it's
15 something -- you shouldn't limit your approach.

16 It could be varied by -- you could have different
17 levels of -- from free release, if there's no radioactive
18 impact at all, to three, four, five levels -- whatever -- of
19 restricted use -- restricted release. Which might also
20 allow you to release more material, depending on how it
21 could be used in the future. And that could also take into
22 account what Ray was saying about a one-time release or -- I
23 should say a one-time restriction versus a permanent one.

24 I guess that's my comment. Just it could go to
25 each isotope and depending on where it was used, and so on

1 and so forth.

2 MR. CAMERON: Well, good. I think that's a
3 legitimate addition to the list.

4 How about other ideas? And keep in mind that
5 we're trying to brainstorm here. It's not necessarily
6 something that has to make obvious sense to you. It's just
7 to try to ensure that we give this the broadest range of
8 review as possible.

9 Anybody -- anybody else? All right, Rob?

10 MR. HOLDEN: Well, I think perhaps developing more
11 lists of restricted uses that basically serve the same
12 purpose as disposal in a dedicated waste facility. That is,
13 isolating the material from human contact, essentially, and
14 from contaminating the environment, which is what the waste
15 facilities will do. If you can find uses that are
16 restrictive, that are going to keep this material away for a
17 predictably long period of time, I think that would be a
18 very good approach. And perhaps more lists in that regard
19 would be helpful.

20 MR. CAMERON: Okay. So that would be really,
21 thoroughly examined with what the potential restrictions --
22 potential restrictions on use might be.

23 Okay. Anybody else want to offer another
24 alternative? Andy? Let me give you this.

25 MR. WALLO: I guess I would say that a lot of

1 these things also push for identifying some sort of
2 dedicated use or special use processing facility. You can't
3 make these restricted use materials unless somebody turns
4 them into -- from what they are now to what they're supposed
5 to be in the future. And so you need decisions as to
6 whether that can be done anywhere or only at a few places,
7 and under what conditions those things can be done.

8 MR. CAMERON: Okay. Let's put that up here, too,
9 on the paddock for our feasibility discussion. I mean, one
10 of the -- the feasibility of various restricted use
11 alternatives might be that you're going to need the
12 processing facilities for those restricted uses.

13 Brian?

14 MR. HEARTY: This is Brian Hearty. A lot of the
15 restrictions in different materials that we're talking
16 about, this all starts to sound a lot like the general
17 licenses that we have in place right now that are
18 industry-specific/material specific. I'm just wondering if
19 that's a potential to look at.

20 MR. CAMERON: Let me get some -- let's put that up
21 as -- can we put that up as an alternative? Don Cool is
22 shaking his head "yes," so, Barbara, let's add that as --
23 make sure that that's on our list for alternatives. Okay?
24 General license. And we can -- you know, we can expand on
25 that later on.

1 Paul?

2 MR. GENOA: Yeah, this is in the brainstorming
3 area, so you can throw sticks at it -- or stones. But
4 getting to your point, which is, you know, is there an
5 economic feasibility to having a special use facility that
6 may need licensing and controls to allow for this restricted
7 activity -- let's get my mike fixed here.

8 My point would be that, one, the market -- you put
9 in place a regulatory structure, the market will respond if
10 there's a market to be -- you know, to be had. So I have
11 full confidence in free enterprise that that will occur, if
12 it's feasible. So you've got to put, you know, safety and
13 health sets the standard, and then we see what we can do
14 within that structure.

15 But along that line, if we just look to general
16 recycling, I mean for a long time recycling -- there was no
17 economic pay-back to recycle. People wanted to do it,
18 because it felt good and it was the right thing to do, but
19 it was too expensive. And, in fact, in many municipalities,
20 the materials were collected at the curb side and then taken
21 somewhere and maybe recycled and maybe not, until there was
22 enough momentum -- until people were trained to segregate
23 and sort, and until the materials all got to one place so
24 that then there was a market. Then there was enough
25 material to put into a market.

1 So my proposal would be that you might consider
2 the possibility of centralized storage for some specific
3 materials that would be cleared from facilities, that would
4 be safely stored until such a market could develop.

5 MR. CAMERON: No, I think that's out -- that's
6 another alternative for the list, too. That would be a
7 seventh alternative, which is a -- develop a specialized
8 storage facility for certain types of materials -- interim
9 storage.

10 UNIDENTIFIED SPEAKER: They might decay over the
11 years, too, so that's a problem.

12 MR. CAMERON: Okay, might decay over the years.

13 And, Barbara, if we could also get that up there
14 as a number -- as a Number 7, also, specialized storage
15 facility.

16 All right. Oak Ridge, right?

17 MR. GIANUTSOS: I'm Philip Gianutsos from GTS
18 Duratek in Oak Ridge. And, in fact, we do have a dedicated
19 facility for cutting, sizing, and melting contaminated scrap
20 now. It can be done in a reasonably controlled manner with
21 no environmental releases.

22 The process is proven and, of course, any rule
23 making that comes out of this will impact the economics of
24 that business. But there are several alternatives already
25 in place for dispositioning this material. And one of the

1 charges that I see here is we want to come up with a method
2 for addressing volumetrically contaminated contaminated, in
3 particular, activated materials that implies a volumetric
4 standard. Once that kind of value is in place, then there
5 is certainly other options where you melt limited quantities
6 with otherwise dilution material.

7 Right now the 1.86 limits replied with no regard
8 to the mass of the object. A one-pound object or a
9 100-pound object, depending on the surface area, will end up
10 treated the same way. These can be melted and then the
11 overall activity viewed in terms of the total mass. That's
12 certainly an option.

13 A lot of the material is not released now as a
14 result of the difficulties with the surveys, rather than the
15 actual activity that's present. That would offer an
16 alternative.

17 MR. CAMERON: Okay. Thank you, Phil. And I guess
18 that -- do we need to add anything to the list or it just
19 sort of reaffirms the specialized treatment? Would you add
20 anything to the list of alternatives?

21 MR. GIANUTSOS: Just the proposal that a dedicated
22 facility might be, in fact, practical, has already been
23 proven. You just need to state that.

24 MR. CAMERON: Okay. So that's a feasibility --
25 that's an implementation issue, the feasibility has already

1 been demonstrated.

2 Okay. Any final alternatives? And then we're
3 going to roll onto to Giorgio Gnugnoli. Jim's going to say
4 something that he never thought he'd hear himself saying
5 again, probably, right?

6 MR. TURNER: No, this is a short one. One I don't
7 know that's been brought up or not, is you could maybe not
8 necessitate as many specialized facilities if some of the
9 standards were relaxed for the non-specialized facilities to
10 handle some of this material. That way, I think what's
11 important is that whichever way you go on this, is you can
12 always consider that there should remain or should keep
13 competition. So there's not just one facility that can
14 handle this material.

15 MR. CAMERON: Okay. So that would be, I guess,
16 something to think about in the implementation --

17 MR. TURNER: Right, try to keep it economical by
18 maintaining competition.

19 MR. CAMERON: Okay. And let's -- let's make sure
20 we come back to that point, too, when we get to the
21 implementation issue. And we'll put it up here.

22 Ray?

23 MR. RAY TURNER: Very short. I think I mentioned
24 earlier, but very important I think in this session we're
25 talking about recycling materials. Much of the material, as

1 I understand it, that will go from the DOE stock -- we'll
2 call it the DOE stock piles or from the radiological stock
3 piles -- will be semi-prepared material and will require
4 further preparation prior to melting in -- be it an electric
5 arc furnace -- GTS Duratek I think has induction furnaces.
6 You have to consider the type of preparation -- whether it's
7 a shredder. Is there going to be flakes of the material
8 coming off that people will have to get into the bottom of
9 the shredder box every day and shovel that material out that
10 will concentrate there? Is it going to be torched-cut to
11 prepare it to size, so that they will be creating airborne
12 emissions that people will be working next to? You're going
13 to have to consider the downstream preparation prior to
14 melting at the scrap dealer's operation.

15 MR. CAMERON: Okay, thank you. That just sort of
16 sparked an idea in my mind here, and we're going to go to
17 Giorgio. But there may be a lot of implementation issues
18 connected to these alternatives that may only come out if
19 alternatives are sort of listed for public comment by the
20 NRC. I mean you wouldn't want to issue a proposed rule with
21 a particular approach in it that had a lot of downsides
22 connected to it. So it may -- it may envision another step
23 to this process before there is a proposed rule, just
24 hearing some of the things that are said.

25 Let's go to Giorgio. Are you ready, Giorgio? And

1 thank you very much, Frank, for the presentation and
2 stimulating that discussion on identification of
3 alternatives.

4 Giorgio is going to look at health and
5 environmental impacts of various alternatives. Go ahead,
6 Giorgio.

7 MR. GNUGNOLI: If anybody's there following along
8 the issues paper, this is discussed in Issue 2, Item A.

9 You heard pretty much today -- just to provide a
10 little bit of a transition -- about trade-offs, and
11 eventually when we do look at the list of alternatives to be
12 considered, we would need some sort of measuring tool for
13 this comparison. And this session is looking at one part of
14 the tool, which is to evaluate and characterize the impacts
15 that would be associated with each one of these
16 alternatives.

17 First and foremost, the basis of NRC's
18 consideration of any action really is the protection of the
19 public health and safety and the environment. So whatever
20 alternative we go with or consider in terms of the control
21 of solid radioactive material and the release thereof would
22 be from that perspective.

23 We would look at all of the alternatives being
24 considered -- and generally one of the important indicators
25 or attributes that we look at is the potential radiological

1 impact. And this is generally interpreted in two ways. And
2 Bob Meck earlier described the individual dose and the
3 collective dose.

4 This is -- this does present a little bit of a
5 challenge to us, because we're not looking at a site that's
6 being released. And, let's say, a critical or maximally
7 exposed individual. And perhaps a population that's around
8 the site or that might be affected by that site after it
9 might be decommissioned or released.

10 What we're really looking at here is now material
11 that has gotten out into the environment and, in effect, the
12 material is out there and we're looking at a different kind
13 of way of computing that dose or evaluating that dose or
14 impact.

15 We would still be faced with the same questions.
16 We would be looking at the dose to the individual from a
17 single source if, for instance, we were talking about a belt
18 buckle or a pair of glasses. But also all of the things
19 that may affect that individual. So it's not just the
20 glasses, not just a belt buckle, but everything. The
21 girders that might be in the wall of the building that you
22 live in.

23 And the way we do it is -- as most of you are
24 aware of -- is by modeling this approach. We look at the
25 material flow from the time it's released, gets out into the

1 environment. We look at the scenarios which kind of
2 describe how this material can come in contact with the
3 individuals. And then we evaluate the pathways by which
4 that material can, in effect, deliver the dose.

5 If you refer to Nu Reg 1640, the way that's done
6 is a number of a scenarios and you try to find a bounding
7 individual for a particular scenario. So whether you're
8 talking about the bag house dust or whatever, you look at
9 this one individual that may be bounding all the other ones,
10 and you say, "If I protect that one individual, I protect
11 everybody else that might be exposed."

12 When you go to the -- the reason you go to
13 collective dose is when you're trying to compare
14 alternatives you can't just use this maximally bounding
15 situation. So you sort of have to see how it's spread out
16 and then evaluate what the impacts are to the collective.

17 If we can go to the next slide -- we don't look
18 just at the dose. We have to look at other things. The
19 dust to individuals -- we'll have to look at impacts on
20 biota and land use, specifically public land use areas,
21 wetlands, preserved habitats. The National Environmental
22 Policy Act sort of tells us it's more than just human beings
23 that we have to worry about, and so we have to do this in
24 our evaluation of impacts.

25 The -- there is a lot of evidence and data coming

1 along that shows that, for instance, there are species that
2 are more radio-sensitive than man. So that, in effect, we
3 have to put into our considerations. And when we do these
4 trade-off discussions and we say, for instance, we might
5 prohibit the release of material, we have to look at how the
6 -- what kind of effects would balance that. We may end up
7 having to manufacture a process more, to make up any
8 shortfalls in materials, and then we'd have to look at the
9 impacts from that new incremental adjustment, which would be
10 in terms of the pollution that would be added in, the
11 increased potential for occupational injury, and all the
12 other attendant impacts.

13 If we can go to the next one -- and has been the
14 discussion today, we've known that some of these things may
15 be competing. If you send material to a low-level waste
16 site, you start filling up the low-level waste site and then
17 you have to have another low-level waste site to make up for
18 the fact that you need more space to dispose of things. So
19 -- and, in effect, that's not such a bad thing. If we
20 didn't have this competing effect, we really wouldn't have
21 much to compare when we do these cost benefit analyses.

22 So I guess it's to be expected.

23 The next item is the environmental justice. This
24 has obviously gotten more play in more recent times. The
25 examples are much more illustrative when you talk about a

1 site. If you're going to site something like a low-level
2 waste site or an incinerator, if you're siting these places
3 in the poorer sections of town or where the disadvantaged
4 may be living, you're sort of biasing things. And we try
5 not to be guilty of that kind of thing. Likewise, if we're
6 going to put a girder in a bridge and we say that's an
7 authorized use or a restricted use, then if the bridge gets
8 torn down -- whether it's re-rolled or whether it's
9 re-melted or not, we're postponing in the future something
10 that maybe we're responsible for today.

11 So there is an effect of sort of an avoidance of
12 this disproportionate allocation of impact.

13 The other items are, of course, the National
14 Environmental Policy Act requires us to look at are
15 non-radiological impacts, occupational injury,
16 transportation, noise, road construction -- that would all
17 go along with one particular alternative, as opposed to
18 another. And that would be -- the evaluation would, in
19 effect, have to cover those, as well.

20 And, of course, the final point is this is just a
21 very short list in terms of impacts that we might find. And
22 when we evaluate alternatives, we would basically have to
23 consider a few more. And certainly we're open to any
24 considerations and suggestions you may have to offer that
25 maybe we haven't covered.

1 So, with that, the floor is yours.

2 MR. CAMERON: Thank you very much, Giorgio.

3 Giorgio has run down some typical types of impacts
4 for us, and let's go out to you. I see Paul would like to
5 say something. Go ahead, Paul.

6 MR. GENOA: I didn't want to let you down. Paul
7 Genoa, NEI.

8 Yeah, it occurs to me that there is an impact and
9 it's hard to get your hands around, but it's sort of lost
10 opportunity impact. And this is the idea that fundamentally
11 if you don't have a standard that's implementable, you can't
12 do a clean-up. You can't do it. You can't decommission
13 nuclear facilities. So if you can't decommission a nuclear
14 facility or -- in the DOE case, I know that you're looking
15 at commercial facilities. But, you know, we have facilities
16 out there that are contaminated. And it's not just
17 radiological. It's non-radiological, as well. If you don't
18 have standards, that impacts the ability to clean them up.

19 And if you can't clean them up in a timely
20 fashion, what is that risk to the public for not doing that?
21 It's a lost opportunity cost and it's real. And I don't
22 know much more about it than that, but it's something you
23 ought to consider and evaluate. If you have a clean,
24 implementable standard, the process moves forward. Things
25 get done, society is protected. If you don't, you clog up

1 the system.

2 MR. CAMERON: Okay. And you've framed it in one
3 example you gave of framing it is that a site sits there,
4 not cleaned up. I suppose from the -- from the economic or
5 productive use aspect, it's a piece of land or a facility
6 that might sit unproductive somewhere because it isn't
7 cleaned up, which would probably fall into Giorgio's next
8 presentation. But I think that that lost opportunity is a
9 good way to frame it.

10 Bill?

11 BILL: I would say you have an issue here showing
12 that potential collective radiation doses to different
13 population groups might be included in your potential health
14 and environmental impact analysis.

15 I would point out that at these low dose levels,
16 the Health Physics Society has written a position exactly
17 contrary to that, saying that the uncertainties associated
18 with the low doses in the population groups lend no credence
19 to doing the collective dose evaluation. And we would
20 encourage you to consider individual dose to critical
21 groups, but not collective dose to the critical group.

22 MR. CAMERON: While we're on that, does anybody
23 have anything else to say on the collective versus
24 individual? Giorgio?

25 MR. GNUGNOLI: It's also been said that you could

1 probably go all the way up to 25 and 30 and make those kinds
2 of statements.

3 The point here is you're using the cost benefit
4 analysis -- if I could just leap ahead a little bit, not too
5 much -- you're using it to try to help you make a decision.
6 And a number of people say that there isn't a tremendous
7 amount of health effect difference in terms of these values.
8 But the cost that may be associated with these may be large,
9 may be worth looking at. And so ultimately we are looking
10 at a cost benefit-kind of analysis, and whether you look at
11 it in terms of where the curve bends the sharpest or
12 wherever, it just helps the decision. It doesn't mean it
13 dominates the decision and you'd have to do it that way.
14 But it gives you that frame of reference.

15 So we are aware of that, and I think that it's a
16 very meaningful point to make. But certainly if you start
17 bringing the uncertainty in on it, we're going to have a
18 real hard time making a decision about the value of
19 collective doses for anything underneath a 100 mrem.

20 MR. CAMERON: Okay. Did -- Dr. Lull, did you want
21 to --

22 DR. LULL: I'll just second his comments about
23 collective dose.

24 MR. CAMERON: Okay. We have a second on the
25 collective dose.

1 Andy?

2 MR. WALLO: I guess I would have to also echo
3 Giorgio's comments. In terms of federal radiation
4 requirements, we have adopted a system that includes both
5 limitation on individual dose -- which is our dose limit
6 process -- but it also requires that we optimize our
7 protection and we optimize it on the basis of collective
8 dose.

9 Now, whether that's satisfying to some or
10 scientifically sound to others, but the fact is that that is
11 the current process by which we in the federal government
12 regulate. It's in the federal guidance and it's -- so it's
13 probably a broader issue than just the recycle issue. To be
14 consistent with our current requirements, we have to at
15 least consider collective dose.

16 MR. CAMERON: Do we need to -- for people who
17 aren't here or that are reading the transcript -- or for
18 people who are here, do we need to give some definition of
19 the difference between collective and individual dose? I'm
20 hearing a "yes," and who wants to try to do that for us?
21 Giorgio, I would turn to you.

22 MR. GNUGNOLI: Yeah, I know that -- actually, if
23 you can remember a little bit back to what Bob Meck was
24 saying earlier, we talk about it in general. I mean what I
25 mentioned earlier about the scenarios, the material flow,

1 and the pathways is pretty relevant here.

2 You're looking at the material leaving a facility,
3 going out, getting all over the place in terms of the
4 general commerce and the environment. And then you're going
5 to look at how this material can deliver the biological
6 effect. And what you're talking about is either by
7 inhalation, secondary ingestion or ingestion contact --
8 whatever. There are a number of pathways that you would
9 look at how -- whether it's bag house dust or whether it's
10 braces in your kid's teeth or hip joint or whatever, how is
11 that getting into the body and how is it causing the
12 problems that are usually associated with impacts from
13 radiation.

14 In the report, the 1640 report that was done for
15 -- in draft for this particular effort, there were a number
16 of scenarios that were identified. And I think that
17 basically they gleaned it down to about 80 or so scenarios
18 of significance. And looking at these various materials,
19 such as steel, aluminum, copper, and rebar concrete,
20 they, in effect, came out with tables which allow you to
21 find out what you might expect in terms of an individual in
22 a particular scenario situation.

23 For instance, I think one of the controlling
24 scenarios was the truck driver -- and not necessarily the
25 family that was cooking with the iron pan that may have been

1 from recycled steel or iron.

2 So we're looking at that.

3 And the point that I said a little bit earlier in
4 our presentation was the fact that when you go to collective
5 you don't look at this bounding situation, but you sort of
6 have to look around at how this material is throughout
7 society. And it's not what you might consider the
8 traditional NRC kind of an evaluation of the collective
9 dose. It's almost more like what the Consumer Product
10 Safety Commission might be doing, because you're looking at
11 how these things are all over the place. So it's going to
12 be a little more challenging when we go from the individual
13 bounding dose to when we're talking about the collective
14 dose. It's almost like the whole country might be involved.

15 MR. CAMERON: Okay. Thanks, Giorgio, for talking
16 about those challenges and giving us a clearer idea there.
17 I'm going to ask Andy to say a few words here.

18 MR. WALLO: Yeah, I just wanted to take a simpler
19 shot at collective dose, Giorgio.

20 Basically the individual dose that we talk about
21 is either a maximally-exposed dose or an average dose to a
22 critical group, that group that gets the highest dose. When
23 we talk about collective dose, it is basically the sum of
24 the average doses. It's the per capita dose summed over all
25 the people. So you have the average dose based on whatever

1 uses the material might come to and you multiply that times
2 the number of people that are exposed to that average dose.
3 And that's what the collective dose is. It's the sum dose.

4 MR. CAMERON: You know, I'm beginning to be sorry
5 that I started this. But let me go to Robert Holden and see
6 what Robert has to say.

7 MR. HOLDEN: I'm not entirely sure of the degree
8 of relevance and every time I mention something, it seems
9 like I seem to hear ways to disassociate the concerns or the
10 dangers. But when we talk about the impacts, collective,
11 individual, cumulative -- those sorts of things -- and the
12 type of materials that might be released, I saw soils being
13 mentioned and talked about. And just sort of an analogy
14 that was talked about when -- in regards to products such as
15 pesticides being released and that were regulated, but were
16 liable and were intentionally put into soils. And they
17 would be collective in the roots or the bodies of plants, as
18 well as animals which were ingested by native populations.
19 But also some of these toxics were collected in the roots
20 and which were used as medicines, which prior to that had
21 beneficial effects, as opposed to detrimental effects beyond
22 that collecting within those roots of some of the plants.

23 But also some of those plants were used by
24 different folks in tribal communities who used them, for
25 instance, to make baskets. And in making these baskets,

1 when they were pulled from the ground they were absorbed.
2 Some of these chemicals were absorbed into the bodies. But
3 also in making these baskets, they would be -- some of the
4 materials would be put in the mouth, they would be mashed,
5 or formed to that specific need. And when those things take
6 place, you have that cumulative effect, which also stays
7 within that person. But also it's passed on to the next
8 generation.

9 And if -- you know, it also caused eradication of
10 that plant itself, for instance. And if that plant goes,
11 then perhaps the songs that go to identify that plant or
12 someone sings to -- for the harvest of that plant or to go
13 further, this basket -- whatever -- is used in some sort of
14 ceremony, then that ceremony became non-existent. And then
15 that song also was gone. And so even that part of that
16 society -- that tribal community -- those people were no
17 longer needed. So there are cultural impacts from the
18 different releases of different materials.

19 So that's what we have to be careful of. And
20 that's things that people I work with are mindful of. And
21 it's hard to -- it's difficult to, I guess, impart that and
22 impress upon other folks those types of concerns.

23 MR. CAMERON: Thank you very much, Robert. It's
24 not only the more severe health impacts, environmental
25 health impacts in a particular cultural setting, but

1 actually a cultural impact itself. So there's really two
2 things that you identified there that I think are very
3 important. And thank you for that and thanks for getting us
4 off the collective dose. And we're not going to you, Jaz.

5 MR. GNUGNOLI: Before we go any further, I mean
6 this is really the heart and soul of a lot of the
7 environmental justice issue. I mean, you know, we're
8 worried about something here that's usually very difficult
9 to quantify. And it's more a question of us being more
10 sensitive to it. And it's something we haven't in the past
11 been very good about. And I think we're certainly much,
12 much more attuned to this kind of thing than perhaps we were
13 in the past.

14 So, I mean, when you read "environmental justice,"
15 you know, you start looking in there. We're talking about
16 we don't want to disproportionately affect one particular
17 community, whether it's the native nations or whether it's a
18 species or anything, really. We're trying to avoid that
19 kind of situation, to the extent we can. There are
20 practicalities involved, but we're aware of this and we're a
21 little bit more sensitive to this now than we perhaps were
22 before.

23 MR. CAMERON: Okay. Heather? Heather Westra?

24 MS. WESTRA: I think there's a nexus to something
25 that we talked about earlier, and that's the regulation of

1 this material. And any time -- it's been my experience that
2 when the states are delegated authority to do things, either
3 by NRC or EPA, the tribes always lose. Because that trust
4 responsibility that all federal agencies have to the tribes
5 is kind of removed now, because there's no federal action.
6 And it's related to what Robert was saying, is that -- you
7 know, if tribes are coming in contact or Indian people are
8 coming in contact with these materials and it's regulated by
9 the state, oftentimes there's no recourse for the tribe to
10 get some resolution to that issue.

11 That's just a comment I want to make. But also I
12 had a question. Could you describe how these materials
13 could come in contact with the environment? Like under what
14 scenario would they be released into the environment and
15 impact the environment?

16 MR. CAMERON: Giorgio, can you -- would you like
17 to handle that or should we go to one of your colleagues?

18 MR. GNUGNOLI: I can certainly give it a start.

19 MR. CAMERON: Good.

20 MR. GNUGNOLI: What happens is a typical kind of
21 material flow that we consider -- for instance, if a
22 material is being released by a facility, it may go to a
23 scrap dealer. In a scrap situation, the material may get
24 re-rolled, as was mentioned before, it might get re-melted.
25 And that's generally what we talk about as recycling.

1 Once it goes away from that point, it's very
2 difficult to identify where that material came from. And so
3 then that material goes into the manufacturing products,
4 commercial products. So let's say you're talking about your
5 frying pans, let's say you're talking about car parts and
6 the construction of other equipment that's made of metal,
7 pumps -- this material gets into the commerce and in our
8 manufacturing process, and then it goes out into society.
9 There's nothing stenciled on there that says this came from
10 a nuclear power plant area or anything of that sort.

11 So, in effect, it's almost as if it was rolled out
12 of the original processing from the raw ore material that
13 generates it. You wouldn't be able to really tell the
14 difference a lot of times.

15 So the only real difference is where it has
16 originated. But they all go to the same place to get formed
17 into the products and manufactured products. How it gets
18 into the environment, specifically as opposed to material
19 that may be processed, it -- for many years we looked at
20 uranium mill tailings as just being a by-product of an
21 industrial process. They were mounded up, like you get
22 tailings from processing any ore for its metal content. It
23 wasn't really until 1978 that a law was passed to say the
24 stuff is now radioactive waste.

25 So these tailings are materials from processing

1 exist all over the country. And so those materials can get
2 into the environment, either by erosion, by wind, or by --
3 you know, infiltration into water systems. So, in effect,
4 what we're talking about is something not really limited to
5 nuclear materials, but just the industry and industrial
6 processes. And so you're really asking a question of how do
7 things get out into the environment and affect people from
8 the fact that we are an industrialized nation.

9 I don't know if that's too general or ...

10 MR. CAMERON: We're going to try to amplify a
11 little bit on this, and if we could just be succinct and
12 brief.

13 BOB: I have a 25-page prepared text for this
14 question.

15 No, I sincerely want to get the information to you
16 in a way that I think all of us can understand it. Let me
17 just go through some of the things that we analyzed, and
18 they may help answer the question for you.

19 Among the scenarios that we considered is some
20 steel with radioactivity on it being melted. Well, the
21 radioactivity, because of different chemical properties, may
22 stay with the steel or it may go to the by-products of that
23 melt. Some of the by-products are slag or the bag house
24 dust. There's a lot of dust generated in melting. And some
25 of it may go out as a gas into the air.

1 And so certainly the gas into the air, how that
2 gets into the environment is kind of a one-step process at
3 the point of the melting.

4 For example, radium would tend to go to the slag,
5 and then we considered, well, how is slag used commercially?
6 And one of the scenarios we considered was, well, you put it
7 into a road bed. And even though it is under the surface
8 material of a road, there is some leeching when rains or
9 other water associates. So that would be a way that that
10 product gets into it.

11 And then ultimately any material that turns into a
12 product -- all products eventually either wear out or
13 they're refurbished. And they may find their way into a
14 landfill. And, again, that would be into the environment of
15 the landfill.

16 In addition, some of the scenarios that we
17 considered are what we call re-use scenarios. And this is,
18 say, a piece of equipment. For example, a pump. And it may
19 have radioactivity on the surface of that pump. And, again,
20 people who are maintaining that pump may come in contact
21 with some of that radioactivity.

22 Those are the kinds of things that we analyze. We
23 try to -- we try to imagine realistically what could
24 reasonably happen to the radioactivity that is associated
25 with any of the product -- any of these metals or concrete,

1 given industry as we know it today. And then try to carry
2 it out to the full length of that.

3 While I've got the floor, I'm going to take an
4 opportunity to pick up on something that Robert Holden was
5 talking about, and that is to ask for some -- some help or
6 some ideas about those kinds of factors that are difficult
7 to compare. Certainly, the loss of a song in a tribal or a
8 societal situation, I personally have no idea of how to
9 evaluate that. But it certainly is -- one could say that
10 it's priceless. So how can you compare that with, you know,
11 the cost avoided for burying some radioactivity? I don't
12 know how to do that when we're trying to make these value
13 judgments. You know, the change in the view of a landscape
14 because a certain plant is gone. How do you value that?
15 How do you compare that with -- there are several of those
16 kinds of societal values. And, you know, those things are
17 of value to me, too, even though I'm not a Native American.
18 You know, they make up the fabric of the country.

19 And so what I'm asking for is is there some
20 insight or can we do some brainstorming on how the NRC
21 should consider those things that are really hard to get
22 your hands on in terms of a societal value.

23 Thank you for your indulgence.

24 MR. CAMERON: Okay. Thanks, Bob, for that -- that
25 was a good explanation, I think -- a good answer to

1 Heather's question. And you raised something else. I don't
2 know if Robert or Heather would like to speak to that, but
3 certainly could.

4 MR. HOLDEN: To what you said about how do you
5 assess the benefit or how do you assess the loss of
6 something of this nature, I mean the short answer is I don't
7 think you can. Just as you -- you know, not that long ago,
8 some of the folks that I've been associated with, that I've
9 learned some of the things I've said -- what I'm saying here
10 is not what I know, it's just what's been told to me. And
11 they would think it utterly ridiculous that we even, you
12 know, sit down to even discuss notions of value judgments
13 and cost benefit analysis, because these have no -- you just
14 can't assess what they mean, because they're -- for one
15 thing, it's not for us to assess or to try to assess them.

16 And also what my predecessors have been through
17 and learned is that many instances this becomes a numbers
18 game, you know, in terms of you have 10 people in the room.
19 You have 20 people or however many in a room. We may have
20 one tribal person there if we're lucky. And then if you
21 establish priorities based on what's important to everyone
22 around the room, you're going to lose.

23 Not to go off on a tangent, but, you know, when we
24 try to establish these treaty-based rights on the protection
25 of lands and resources, and we wind up in court over

1 something that has been dumped over something that has --
2 that the states try to take control of, and -- for instance,
3 fishing in Washington. You know, the resources there,
4 that's impacted by the Columbia dams and so forth, you know,
5 and that if we went to continue that harvesting and so
6 forth, we actually lose because, you know, we had it all.
7 Now we only have half of it or access to half of it or none
8 of it or only a part of it, because a lot of it has been
9 destroyed.

10 I'm sorry to get into this philosophical mood, but
11 it's just something that I'd appreciate hearing from you
12 that it's something that's on the minds of people in this
13 room.

14 But we certainly would try to discuss this further
15 and find some way to get into the mix those concerns. And
16 even though, as I said, there's just no way that I -- for me
17 to try to present something, you know, conclusions or
18 alternatives, that sort of thing, is certainly beyond my
19 ability or for me to sit here and think that I would possess
20 that type of knowledge to do something like that. It just
21 can't be done. But I do appreciate hearing that.

22 MR. CAMERON: Okay. Thank you very much, Robert.

23 I'm going to go over to Paul Genoa. Go ahead,
24 Paul, you have the mike.

25 MR. GENOA: Yeah. I thought this last session was

1 very important, and I think the points that you brought up
2 and the requests I think I'm hearing from Bob is the
3 acknowledgement, you know, first, that there have been
4 mistakes in the past and they're often due to cultural
5 biases and ignorance. And the fact is when Bob does his
6 analysis of what happens in material flow, he has a cultural
7 bias on how our society uses materials. And sometimes it's
8 not 100 percent right.

9 In the past we've seen mistakes. We've seen
10 mistakes in Europe, in England, where we didn't think that
11 people ate seaweed. And we realized that, well, all of the
12 sudden there are seaweed breads that are used, that collect
13 iodine and cause an exposure pathway that we didn't know
14 about.

15 And the most valuable thing by you participating
16 is you're sharing other potential pathways that our cultural
17 bias is blind to, and ensure that they're incorporated.

18 The answer to your question of how you evaluate
19 whether -- whether you can allow something to happen or not,
20 you don't evaluate. You're not in a position to say, "We're
21 going to do an activity that's going to put a plant or a
22 species out of -- into extinction." You're not going to do
23 that, you're not allowed to do that.

24 You could do it by accident, and that would be
25 terrible. And the only way we can avoid that is by

1 information and sharing. So I think it's real important.
2 This thread needs to be carried further.

3 MR. CAMERON: Good. Thanks, Paul, for
4 underscoring -- all of you for underscoring the need to talk
5 to a lot of people and get as much information about this
6 before any course of action is determined.

7 Ed?

8 MR. BAILEY: Ed Bailey from the State of
9 California. And I apologize for not identifying myself
10 earlier as I spoke.

11 I have to express what I have heard from both the
12 people in the executive branch and the legislative branch in
13 California who have expressed great concerns about this rule
14 making. And the concern seems to be related to -- other
15 than the fact that it's nuclear -- to the fact that you have
16 a hazardous substance which is under control and you are now
17 proposing to essentially allow that hazardous substance to
18 go out and be windspread. And I think that echos some of
19 the issues on the pesticide. And there is a real concern
20 there that -- whether it's truly based on science or what --
21 there is a concern -- a continuing concern that in doing so
22 there may be impacts that you are not considering in the
23 rule making.

24 Now, whereas from my standpoint as a regulator it
25 may make it much easier to deal with an individual release

1 of material. From the standpoint of -- if you want to call
2 them the policy makers in this state, they maybe do not have
3 as much faith in science and mathematics as I do.

4 And having said that, I still have difficulty in
5 talking about collective dose, in taking two numbers 12
6 orders of magnitude apart, multiplying them together and
7 coming up with a real number. But, anyway, that's sort of
8 an aside.

9 I would mention, though, that in looking at these
10 things and in the re-use we can gain some insight on some
11 things we need to look at from the Mexican steel incident.
12 As one of those who went out and surveyed a bunch of table
13 bases, I can tell you the concentrations were not the same
14 from table to table out of the same batch of steel. And the
15 dose coming off of that steel varied by several orders of
16 magnitude.

17 So I think that very definitely needs to be looked
18 at when you start looking at the dose to the public through
19 the various pathways.

20 And I think that's -- I've got another word
21 written down here, but I can't remember what it was about.
22 So I'll stop.

23 UNIDENTIFIED SPEAKER: Let me just make sure that
24 I clarify your first point. It seems that one of the things
25 that you might have been saying is that if you maintain a

1 case-by-case approach, that you're still going to be able to
2 take into account all of the potential impacts that you may
3 not be able to anticipate generically. That that gives you
4 more control over it?

5 MR. BAILEY: No, I did not mean to imply that at
6 all. In fact, probably on a case-by-case basis, we consider
7 less than the full range of impacts or pathways than you
8 might consider in a deliberative rule making process.

9 My feeling is -- and I have -- you know, it's just
10 how the people that have expressed this concern to me is
11 that you're simply letting something go that you've got
12 under control. And they don't really have any historical
13 basis for believing that that ultimately will necessarily be
14 the right answer.

15 MR. CAMERON: Okay. Thank you for that
16 clarification.

17 Jaz, you've been wanting to talk for a while, and
18 then we'll get to -- we'll get to Paul

19 MR. DEVGUN: I'm glad Ed brought the subject back
20 to collective dose a little bit. I wanted to -- I wanted to
21 add onto what Andy said. And Andy knows I lived in the DOE
22 system for a few years -- eight years or so.

23 I think it's just one of the things which you use
24 for optimization. So we are not recommending that you use
25 it as a touchstone criteria.

1 Andy, what he mentioned -- and I think a lot of
2 the health physicists already know that, but for the benefit
3 of other people, the ICRP 60, which came out in 1960 --
4 that's the International Commission of Radiological
5 Protection -- advocates a system of radiological protection.
6 It no longer says just use the dose limits. It says use
7 three types of processes, three things: Justification for
8 the action. Which means you've got to look at the activity
9 you're doing. It has a net benefit rather than net harm.
10 So you've got to justify whatever you do.

11 Number two, use the dose and risk criteria as
12 being applied to provide the protection. And number three
13 is the optimization.

14 I think that's where you can use a collective dose
15 as one of the optimizing parameters. And, as you know, it
16 took a lot of work for ICRP 60 to come out to replace ICRP
17 26. And that is a group of international experts. And we
18 are kind of falling in line with a lot of these type of
19 recommendations on the international level.

20 So I do see a use for it in that sense.

21 MR. CAMERON: Okay. Thanks a lot, Jaz, for that
22 clarification. And we may get some more clarifications on
23 that, but what I'd like to keep us working on is other types
24 of impacts -- environmental and health impacts that you
25 might see from this.

1 And I know that you've really worked pretty hard
2 today and listened well and are pretty tired at this point.
3 So I think we're going to wrap up soon and call it a day.

4 But let's make sure we get everything out on the
5 table here while we can. Paul?

6 MR. GENOA: Yeah. I wanted to make two points
7 that are related, and I wanted to help answer one of your
8 questions, which was how these materials enter our
9 environment and potentially cause harm to us. And that
10 fundamentally is the study of environmental health. How are
11 these things -- all things, industrial pollutants, natural
12 pollutants -- how do they enter the ecosystem and affect our
13 bodies in a negative way?

14 And I guess that gets back to what Ed was saying.
15 I believe that and I think that's important. That's our job
16 is to ensure that we will understand how those impacts occur
17 and limit them and optimize the benefits from whatever goes
18 on that might create those things.

19 What I am concerned about when I hear about policy
20 makers and -- is that somehow radiation is isolated separate
21 and treated differently. When, in fact, it is the same as
22 -- or should be treated the same way as any other type of
23 hazard. We do control radiation tightly, probably more
24 tightly than many other environmental hazards. But, you
25 know, there are metals -- heavy metals and contaminants and

1 organics and there are many things in our environment that
2 could cause harm.

3 And generally there are risk-based regulations
4 that try to control them. But they generally have diminimus
5 values. And the environmental protection agency in their
6 approach to it, they try to limit the risk to some value,
7 because it is a practical reality.

8 And I just want to make sure that we don't lose
9 sight of that when we communicate this issue. We're not
10 doing something new and different here. We're doing
11 something that's being done by every other regulator on
12 every other type of hazardous material: weighing out costs
13 and benefit, weighing out environmental and health risk, and
14 trying to control them effectively. We're not doing
15 something new in radiation.

16 MR. CAMERON: Okay. Thank you, Paul. Ray?

17 MR. TURNER: I wanted to respond to one comment --
18 Ray Turner. I wanted to respond to one comment and then
19 make a comment in terms of the table bases, for example,
20 whether there are significant differences in some of the
21 assessments of how much -- I believe it was cobalt that was
22 in the table bases. Having been in the steel industry for
23 about 17 years prior to the scrap industry, I can understand
24 how that happens. Because when -- these table bases are
25 made in foundries. And when the initial tap is made from a

1 furnace, that's not just the batch of steel or iron that
2 you're talking about. It actually goes into another holding
3 furnace that might contain four or five times that amount of
4 steel. So the initial -- and then the table bases will be
5 poured into individual small quantities out of the holding
6 furnace. So the initial blurb, you'll get a higher
7 concentration of the radionuclide or the radiation, and as
8 time goes on or you're holding more to the holding furnace
9 as they go along, then it would decrease as time goes on.
10 So I can understand how that would happen.

11 The other comment that I wanted to make here, one
12 thing that we might consider, we're talking about -- I heard
13 a number tossed out of about 600,000 tons or so of
14 recyclable -- potentially recyclable metals over the next 30
15 years. And we're talking about 20,000 tons a year. Twenty
16 thousand tons a year will only generate about 800 to 1,000
17 tons of slag and bag house dust combined.

18 So we might entertain the thought of a buy-back or
19 a take-back program of the bag house dust and the slag,
20 which is only five percent of the material now that has to
21 be disposed of, as opposed to 100 percent.

22 MR. CAMERON: Now, that's -- can we -- is that --
23 should we list that -- that's an alternative, isn't it?
24 Let's put that up on alternatives as 8, and keeping in mind
25 now that we're not just focusing on things that may be

1 totally within the NRC's authority to implement, like the
2 good NEPA preparers that we are. I think that that's a
3 useful thing to put up there, and thank you, Ray.

4 Roy?

5 MR. BROWN: Roy Brown, Carrera. I have one
6 potential impact, and I wasn't sure whether it should be
7 brought up today under health and environmental impacts, or
8 tomorrow under cost benefit and economic, but I'll go ahead
9 and bring it up, since Robert brought up one other societal
10 issue a few minutes ago. And that is public perception.

11 I think it's very important and I think we need to
12 keep in mind how the public is going to perceive whatever
13 alternative we use, whatever we come up with. I think it's
14 very important that it's explained properly. I think it's
15 very important that it's packaged properly.

16 One example that I like to use in this something
17 going very, very wrong was several years ago the Cleveland
18 Plain Dealer newspaper had a series of articles about
19 problems in the medical industry and nuclear oncology and
20 the problems that had taken place there. After those
21 articles ran in the Cleveland Plain Dealer newspaper, there
22 were patients calling in to their physicians and canceling
23 nuclear medicine studies because of their sheer fear of
24 radioactive materials and radiation. And these were people
25 that were very sick, very ill, with coronary artery disease,

1 cancer. They were calling up canceling their medical
2 appointments, just based on the fear after reading those
3 articles.

4 So I think we need to keep in mind public
5 perception is very, very important, and I think that's an
6 impact that we should consider.

7 MR. CAMERON: Okay. Thanks, and let's add that to
8 the list.

9 Roy, I don't know if you have any -- you may not
10 have any at this point, and I think it's useful to consider
11 it generally, but do you have an application, an analogy, in
12 this area that would be illustrative of the type of thing
13 that happened in the Cleveland Plain Dealer area?

14 MR. BROWN: I'm not sure what you're looking for.

15 MR. CAMERON: Well, I'm wondering if there's -- if
16 there's a -- if the public would do or not do something.
17 Just like the public canceled their medical studies. If
18 they would do or not do something depending on how this
19 material was ultimately regulated. And you may not have
20 anything, and we may want to think about it.

21 MR. BROWN: Yeah, I'd like to give it some
22 thought. I understand what you're saying, and reading how
23 other people are perceiving what it is we're trying to do
24 here and tomorrow, recycle radioactive materials and put
25 radioactive materials in steel products and table legs and

1 braces, I think already people are misinterpreting what it
2 is we're trying to do here.

3 MR. CAMERON: Okay.

4 MR. BROWN: I really don't have a solution at this
5 point, just a watch-out, I guess.

6 MR. CAMERON: Well, thank you. Thank you.

7 And, John -- we'll go back over to Paul later.

8 John?

9 MR. KARNAK: I can't believe I haven't said
10 anything yet this afternoon.

11 One of the things that was suggested to us -- and,
12 you know, just since you've asked the question -- is that
13 like products are now labeled "X" percent post-consumer or
14 pre-consumer recycled material. Folks have suggested to us
15 that when this stuff is reused, you put a label on it that
16 says, "This fender is made with material from a nuclear
17 facility."

18 MR. CAMERON: And, you know, while we're
19 generating alternatives, I think that's -- let's put that up
20 there as an alternative, too. And I'm not sure how you
21 describe that, just "labeling." It's stamped -- right,
22 labeling. Okay.

23 UNIDENTIFIED SPEAKER: You know, just from the
24 reaction we see from irradiated food products and we see
25 people paying extra to get vegetables that can be certified

1 as pesticide, chemical free, I don't know how in the devil
2 you'd get many extra customers by labeling it that way,
3 quite frankly. There are a few die hards in the health
4 physics society that would rush out and buy those products,
5 but other than that, I don't know who would.

6 MR. CAMERON: And I'm not going to say what I was
7 going to say. Paul?

8 MR. GENOA: Just briefly. You asked for an
9 example.

10 MR. CAMERON: Yes.

11 MR. GENOA: An example was presented to me, and I
12 think it has merit. It's already been alleged that this
13 indiscriminate recycling of contaminated metal is going to
14 end up in consumer products, such as braces for your
15 children's teeth. And so you can envision parents not going
16 in and having their children provided with braces when it's
17 needed out of fear of radiation. Where at most
18 conservative, you could envision perhaps a millionth of a
19 mrem. And yet the whole process of getting braces will
20 expose their children to hundreds or thousands of mrem of
21 X-ray exposure that we don't even worry about, you know.
22 So, I mean, there's an example.

23 MR. CAMERON: Okay. And, Roy, that fits within
24 the general point you're trying to make. Let's go to Terry,
25 right?

1 MR. CIVIC: John, if we can just not include the
2 labeling provision, I think the steel industry would be
3 extremely happy with that.

4 The scenarios you have here, though, the impacts
5 of mining and processing of new materials to replace metals
6 sent to LLW, pollution increased occupational injuries, that
7 is a less likely scenario because of the sheer volume that
8 we're talking about. The more likely scenario is the
9 adverse selection by the public on the steel made products.

10 Instead of buying steel in cans, you'd buy it in
11 plastic. Instead of buying cars made out of metal, you'd
12 buy cars made out of plastic. There's a number of economic
13 conditions that would be placed on the steel industry
14 because public perception would be lost in the confidence of
15 the strength, integrity, and cleanliness of the steel that
16 they current use versus the possibility that it's
17 contaminated with a very slight amount of radioactive
18 material and a perception that the steel is contaminated.

19 MR. CAMERON: Terry, thank you very much. And
20 that's one that's going to be very useful to put in the
21 discussion that we'll have tomorrow morning on economic
22 impacts, because I think it fits right in there.

23 David?

24 MR. BELK: Yeah. This is going to seem kind of
25 way off base here -- and somewhat self-serving -- but

1 sitting back here listening to some of the concerns that
2 have come up that are perfectly valid, I think -- and well
3 addressed and well explained -- cultural issues, public
4 perception issues, relative risk, perceive risk -- all of
5 these things that we've been discussing in a number of
6 different arenas all day long -- and I'm trying to think of
7 how to put it in in a useful manner this afternoon, and I'm
8 not sure I can. But it's something that occurred to me.
9 Some -- one of the solutions for a lot of these problems is
10 education.

11 Now, I'm not here to say, "Hey, send your kid to a
12 UC university," or that kind of thing. However, there may
13 be some applicability here that maybe not as an alternative,
14 but say to mediate some of these issues that perhaps NRC
15 should look at educational programs. Not necessarily,
16 quote, propaganda pamphlets or that sort of stuff, but the
17 idea that public education -- these issues need to be
18 presented to everyone and "public" obviously includes
19 everyone, but also specific groups and areas where people
20 have specific concerns.

21 If they don't understand what you're talking
22 about, there's going to be no discussion.

23 MR. CAMERON: Okay, thank you for that. I'm going
24 to list that over here, too. I think it would be an
25 implementation issue, whatever alternative -- well, not

1 whatever alternative. But for certain alternatives, that
2 might be. Now, whether the NRC could or should do that
3 under its mandate is, you know, another topic for
4 discussion. But certainly it's an implementation issue that
5 I'll put up here.

6 We're getting towards the end of our time. Is
7 there anything else? Mark? We'll go to Mark and see if
8 there's one last comment. But, go ahead, Mark.

9 MR. LEWIS: Well, it's at the end of the day and I
10 think I'll speak at this point with a certain amount of
11 peril. So I'll make it fast.

12 I think there's some non-regulatory, non-NRC
13 processes or pressures that are possibly able to be brought
14 to bear here. Listening to Terry, I think if we set a limit
15 for recycled steel or metals or something like that, that
16 the steel is not happy with, they just won't take it. It's
17 going to ripple through the scrap industry and there's not
18 going to be any kind of a market for it.

19 And so I think if we kind of merge that thinking
20 with what we're trying to do with looking downstream to
21 somebody who might actually be interested in this material,
22 we need to set a limit back to kind of where we started this
23 whole discussion this morning that gives everybody a
24 definition that they can live with. In other words, the DOT
25 didn't have any problem going out and saying, "Two

1 nanocuries per gram. Below that, we don't consider it
2 radioactive. Transport it any way you want to." If we put
3 that kind of a definition out, then we can basically define
4 what type of material the steel industry can melt down and
5 not worry about somebody coming back later and saying, "You
6 put contaminated metal in my kids braces," because by
7 definition it's not radioactive any more.

8 And what it brings to mind is -- any of you that
9 know Clint Miller, who works down at Diablo Canyon, also --
10 he has this analogy about spending 30 or \$40,000 to put a
11 truck load of low level radioactive waste in the ground that
12 has essentially the same activity per gram -- the same
13 specific activity as the dirt that we dug out of the whole
14 to put the rad waste into.

15 And somewhere in that level is probably where we
16 need to draw the line and say, "This is the radioactive
17 active content of the earth on a specific activity basis.
18 And if you're there below, that's what we consider the
19 floor."

20 MR. CAMERON: Okay. Thank you, Mark.

21 You know, we can revisit and will when we start
22 tomorrow. We'll see if there's been any more thought about
23 this particular issue tomorrow morning before we go into
24 Giorgio's new presentation. And I would just say thank you
25 for today's participation. And we're going to start at 8:30

1 again tomorrow.

2 And one thing we'll try to do is maybe try to see
3 if we can prevail on Ray Turner to do a little -- I mean,
4 not a big deal, but a little primer for us on how this
5 actually happens. And we'll try to work that in. I think
6 that will be interesting and informative for all of us.

7 Barbara?

8 BARBARA: I'm going to take the opportunity just
9 to -- in light of all of the discussion we've had in the
10 last hour about public input and importance of perception,
11 et cetera, I'm going to take the opportunity to put a little
12 bit of a challenge in front of all of us here today, and
13 maybe we could pick up on it at some point during the
14 discussion tomorrow.

15 Tell me if I'm out of line here, but there is --
16 there is an obvious polarization on this issue that is just
17 tremendous. And, you know, of course Marie has confronted
18 it head-on as much as we can in trying to find a way to
19 define the issues in such a way that broader group --
20 broader participation than this -- than this group that's
21 assembled here -- can engage on these issues and understand
22 these issues at some kind of a technical level, some depth
23 of understanding, so that you can really provide the NRC
24 with some advice about how to move forward.

25 It is great for this group to provide the kind of

1 advice that you are here, and there is definitely a certain
2 amount of diversity. But I think everybody recognizes
3 there's a whole range of folks who are not willing to, at
4 this point, engage in this discussion as it's currently
5 framed.

6 So I would just challenge all of you, in light of
7 the struggles that you're going to face in your individual
8 industries, in your individual states, in your individual
9 professional associations, can you identify for us some
10 strategies to try to broaden the participation in this
11 discussion at this juncture, so that you don't run into the
12 kind of road blocks that are inevitable down the road,
13 whether it's one year or five years from now.

14 MR. CAMERON: Okay. Thank you very much, Barbara.
15 And another issue, perhaps, to visit tomorrow.

16 And I would just thank Giorgio for his work this
17 afternoon on the presentation, and just look forward to
18 seeing all of you tomorrow.

19 Thank you.

20 (Whereupon, at 5:20 p.m., the meeting was recessed
21 to reconvene Thursday,, September 16, 1999.)
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REPORTER'S CERTIFICATE

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

NAME OF PROCEEDING: RELEASE OF RADIOACTIVE
 MATERIAL WORKSHOP

PLACE OF PROCEEDING: San Francisco, CA

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

Nancy Tanagho-Knight

Nancy Tanagho-Knight

Official Reporter

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