

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

OFFICE OF THE SECRETARY

BRIEFING ON EFFORTS REGARDING RELEASE OF SOLID MATERIALS

PUBLIC MEETING

Nuclear Regulatory Commission

One White Flint North

Commissioners Hearing Room

11555 Rockville Pike

Rockville, Maryland

Wednesday, May 5, 2000

The Commission met in open session, pursuant to notice, at 9:30 a.m., the Honorable RICHARD A. MESERVE, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

RICHARD A. MESERVE, CHAIRMAN

GRETA J. DICUS, Member of the Commission

NILS J. DIAZ, Member of the Commission

EDWARD MCGAFFIGAN, JR., Member of the Commission

JEFFREY S. MERRIFIELD, Member of the Commission

2

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

WILLIAM TRAVERS, Executive Director for Operations

DR. DONALD COOL, Director of Industrial & Medical

Nuclear Safety, NMSS

MR. ANTHONY HUFFERT, Decommissioning Projects

Branch, NMSS

MR. FRANK CARDILE, Rulemaking and Guidance Branch,

NMSS

DR. CARL PAPERIELLO, Deputy EDO for Materials,

Research, and State Programs

MS. CHERYL TROTTIER, Chief, Radiation Protection,

Environmental Risk and Waste Management Branch

ANNETTE L. VIETTI-COOK, Secretary

KAREN D. CYR, General Counsel

23
24
25

3

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

2 [9:30 a.m.]

3 CHAIRMAN MESERVE: The Commission meeting this
4 morning is to hear from the Staff on the status of efforts
5 to control release of solid materials contaminated with
6 small amounts of radioactivity.

7 The Staff has provided us in SECY paper with
8 recommendations as to how it suggests that we proceed to
9 address what is a very complex and difficult issue.

10 This is the first of two briefings that the
11 Commission will have on this subject. Our briefing today is
12 obviously with the Staff, and will focus on the paper that
13 has been circulated to us.

14 We will also have a public meeting on May 9th, on
15 which the Commission will have the opportunity to interact
16 with a large number of stakeholders who have interests in
17 this matter.

18 I'd like at the outset to commend the staff for
19 their work on this effort. This is, as indicated, a very
20 complex and intricate task that they have confronted, and it
21 has necessarily involved interaction with a large number of
22 stakeholders, many of whom, it's apparent from reading the
23 SECY paper, have strong and divergent views as to how we
24 should proceed. This issue is not an easy one.

25 Let me turn to my colleagues and see if they have

4

1 any opening statement.

2 [No response.]

3 CHAIRMAN MESERVE: If not, Dr. Travers, you may
4 proceed.

5 DR. TRAVERS: Thank you, Mr. Chairman. Good
6 morning.

7 As you pointed out, the Staff did send SECY 0070
8 to the Commission in March, and this morning, we'd like to
9 summarize the contents of that paper, discussing, in
10 particular, results of some of the public meetings that
11 we've had on the issues paper; discuss some of the status of
12 the technical analysis supporting decisionmaking on this
13 issue, and some of the Staff's recommendations for
14 proceeding.

15 Here with me at the table today are Carl
16 Paperiello, who is the Deputy Executive Director for
17 Materials Research and State Programs; Don Cool, who is the
18 Director of the Division of Industrial and Medical Nuclear
19 Safety in NMSS; Cheryl Trottier, Chief of the Radiation

20 Protection, Environmental Risk and Waste Management Branch
21 in the Office of Research; Anthony Huffert, who is a Senior
22 Health Physicist in NMSS; and Frank Cardile, who is a Senior
23 Project Manager in NMSS.

24 And with that, I'd like to begin the briefing.

25 CHAIRMAN MESERVE: Very good.

5

1 MR. HUFFERT: Thank you. I want to begin by
2 outlining the briefing that we prepared on the SECY paper.
3 The information we present is based on the contents of the
4 main body and the attachments of that SECY paper.

5 First, I will discuss the rationale for examining
6 our approach for controlling releases of solid materials.
7 Then I will summarize recent Staff actions in this area.

8 Frank Cardile will then provide an overview of
9 Attachment 2 of the SECY paper, which summarizes the
10 stakeholders concerns and reactions that we received during
11 the Fall public meetings, and from the letters that we have
12 received to date.

13 Cheryl Trottier will discuss the status of our
14 technical basis, which is contained in Attachment 3 of the
15 SECY paper, and Don Cool will cover international activities
16 as discussed in Attachment 4, and then he will conclude our
17 presentation with recommendations for proceeding on the
18 control of solid materials.

19 Next slide, please. The rationale for examining
20 the approach for controlling releases of solid materials is
21 because existing NRC regulations do not contain generally
22 applicable standards for the control of solid materials with
23 relatively small amounts of radioactivity that is either in
24 or on the material or equipment.

25 Even though NRC does not currently have such

6

1 criteria in place to cover the release of solid materials
2 with small amounts of radioactivity, it is likely that
3 licensees will continue to seek to release these materials
4 under recycle, reuse, or disposal when it become obsolete or
5 otherwise unusable during the operations or at the time of
6 decommissioning.

7 Currently, licensees are authorized to release
8 solid materials and to make specific requests for the
9 release of solid materials on a case-by-case basis.

10 Licensees' decisions are made using a variety of
11 criteria such as Regulatory Guide 1.86, its equivalent fuel
12 cycle, 8323, and 10 CFR 20.2002.

13 The current case-by-case approach is adequate to
14 protect public health and safety. Part 20 of NRC
15 regulations requires licensees to survey materials to

16 evaluate their rad hazard. This provides reasonable
17 assurance that elevated levels of licensed radioactive
18 material is not being released from their control.

19 However, the lack of established logical criteria
20 for controlling solid materials does result in inconsistent
21 release levels. Not all licensees use the same survey
22 instruments and procedures to monitor solid material
23 releases, which can lead to variations in the sensitivities
24 and equipment.

25 Existing guidance such as Regulatory Guide 1.86 is

7

1 based on detection capability of serving instruments and is
2 geared towards the release of solid materials with surface
3 contamination, not volumetric contamination. Thus, a major
4 consideration in the control of solid material is the
5 ability to detect small amounts of radioactivity in and
6 around the material itself.

7 And there are limitations for reliably measuring
8 such radioactivity, even with state-of-the-art
9 instrumentation and measurement methods.

10 Detectability is, therefore, an important issue,
11 not only for the NRC licensees that seek to release this
12 solid material, but also for recipients that monitor
13 radioactivity in their supplies.

14 There continue to be changes in instrumentation
15 and measurement methods, and the role of detectability for
16 controlling solid materials should be followed closely by
17 the Staff.

18 May I have the next slide, please? Recent Staff
19 actions include publications of the issues paper on the
20 release of solid materials at licensed facilities in the
21 Federal Register on June 30, 1999.

22 The issue paper presents a variety of issues and
23 alternatives related to the control of solid material. It
24 also served as a discussion tool for public meetings during
25 the Fall.

8

1 Our first public meeting was held in San Francisco
2 in September, which was followed by meetings in Atlanta in
3 October; NRC headquarters in November; in Chicago in
4 December.

5 At these meetings, we discussed the rationale of
6 why we are examining our approach, alternatives for what
7 should be done with solid materials and what materials
8 should be covered; the context of the dose ranges that we
9 are considering, namely, about one percent of natural
10 background; the technical analyses that have been completed
11 to date; and the health and environmental costs an survey
12 analyses that are still needed.

13 During this time, we also established a website
14 and a list server for public access to the issues paper,
15 related SECY papers, public meeting notifications, the
16 agendas, Staff summaries of our public meetings, and also
17 the meeting transcripts themselves, as well as the comment
18 letters are in the server and website.

19 The website address is show here on this slide as
20 it is still active, providing updated information on our
21 activities in this area, such as the information on this
22 briefing today, and the stakeholder meeting next week.

23 At this time, I'd like to turn the briefing over
24 to Frank Cardile, who will discuss stakeholders concerns and
25 reactions.

9

1 MR. CARDILE: Thank you. There were diverse and
2 wide-ranging comments received at the four public meetings
3 and the over 800 letters received on the issues paper.

4 These comments were received from a variety of
5 different stakeholder groups. These included
6 representatives of the metals, scrap, and cement industries,
7 who are potential recipients of this solid material, as well
8 as from those involved with sanitary waste facilities.

9 Citizens groups expressed opposition to this
10 process, and did not attend the first two public meetings,
11 although a letter explaining why they did not attend was
12 delivered to the meeting attendees.

13 Certain citizen groups did attend the latter
14 meetings, and the large majority of the 800 comment letters
15 that we received were from citizen groups and individuals.

16 There were also a number of comments received from
17 licensees who must deal with issues of handling this
18 material, and from the Health Physics Society, and from
19 persons working in the health physics profession.

20 In addition, there were comments from federal and
21 state agencies and from tribal governments.

22 The Commission paper presented in some detail, a
23 summary of stakeholder reactions. The Staff plans to
24 publish a NUREG report in the coming few months to provide
25 additional detail on the wide range of issues raised and

10

1 comments received.

2 The majority of the comments that we have received
3 have focused on specific alternatives for what should be
4 done with the solid material, and, in general, these
5 comments fell into distinct viewpoints by stakeholder
6 groups. At a meeting on May 9, the Commission will hear the
7 views of invited stakeholders on this subject.

8 Today we would like to provide you with an

9 overview of some of the viewpoints in this area. Could I
10 have the next slide, please?

11 Metals and cement industry commenters indicated
12 that they were opposed to unrestricted release of solid
13 materials that could come to their facilities for potential
14 recycle. The rationale for this view included that there
15 could be a very large economic impact on these industries if
16 consumers do not want to buy products due to concerns over
17 the presence of radiation in the products.

18 For example, a letter from the metals-producing
19 industry estimated that a one-percent loss in market could
20 produce a \$600 million annual loss to the steel industry.
21 Concern was also expressed over the potential for exposing
22 individuals, both at facilities and in the public.

23 It was noted that detectors at steel mills are
24 very sensitive and could alarm at levels near an NRC
25 standard that might be promulgated, which could result in

11

1 the steel industry rejecting shipments of released material.

2 The comment letters from the metals-producing
3 industry suggested that they could support an approach that
4 included the major points noted on this slide:

5 First, metal could be released solely for specific
6 restricted applications that would preclude its use in
7 consumer products. These restricted applications would
8 limit the metal to nuclear-related uses or to disposal in
9 landfills.

10 Such material would need to comply with labeling
11 and tracking requirements. Also, if could be reasonably
12 shown that a metal was not radioactively contaminated at the
13 licensed facility, for example, perhaps fencing from around
14 the perimeter of the site, and if radiation detectors showed
15 that this metal does not contain above-background levels of
16 radiation, then the metal could be released for unrestricted
17 use, subject to labeling and tracking requirements.

18 The letter from the scrap industry did not offer a
19 specific approach, but rather suggested that a panel of
20 stakeholders be formed to provide advice to the Commission
21 on various technical and policy issues.

22 May I have the next slide, please? Citizens
23 groups and individuals generally indicated that radioactive
24 wastes should be isolated from the public, and that they
25 were opposed to releasing materials that could end up in

12

1 consumer products.

2 The rationale for this view included that the
3 risks posed are too high and are avoidable and involuntary
4 and unnecessary; that doses cannot be predicted with
5 accuracy; that releases will not be able to be measured

6 accurately to assure compliance because of difficulties in
7 monitoring; and that licensees and the NRC cannot always be
8 trusted to implement and enforce criteria and regulations.

9 Because of these concerns, the comments that we
10 received ranged from categorical opposition to any release,
11 to general opposition, unless uncertainties in technical and
12 policy issue are resolved.

13 In general, these commenters stated that to be
14 protected, releases of solid material should be prohibited,
15 and that, in addition to prohibiting future releases, there
16 should be full reporting on and recapture of material
17 released so far.

18 May I have the next slide, please?

19 MR. CARDILE: Licensees in the health physics
20 society generally express the view that setting and
21 unrestricted use standard that is set at a low dose level is
22 both appropriate and needed, and recommended that NRC adopt
23 the consensus standard developed by the American National
24 Standards Institute, ANSI N13.12. Specifically, these
25 groups noted that the doses and risks being considered are

13

1 very low and that scientific bodies such as NCRP and ICRP
2 indicate that levels around 1 millirem per year are
3 negligible in risk considerations.

4 These groups also noted that a level around 1
5 millirem per year would be well below doses received in the
6 public's routine activities and insignificant compared to
7 variations in background that people are exposed to each day
8 without discernible effect on health.

9 These commenters also noted that prohibiting
10 releases and sending material with very low amounts of
11 radioactivity to low level waste disposal would be very
12 costful and wasteful of resources, and would not have an
13 accompanying health benefit to send this material to
14 disposal.

15 For example, it was noted that biomedical research
16 could be curtailed or stopped if all materials have to go to
17 low level waste disposal.

18 I would like to now turn to Cheryl Trottier of the
19 Office of Research, who will discuss the issues related to
20 technical basis development.

21 MS. TROTTIER: Thank you, Frank.

22 Could I have the next slide, please? I am going
23 to speak to you today about the information that the staff
24 believes is needed to help the Commission in decision-
25 making, and the first piece of this deals with doses to

14

1 individuals. This work was published as Draft NUREG-1640 in

2 March of 1999, and it describes the scenarios, the models
3 and the calculations of doses for a broad range of scenarios
4 that would constitute the probable fates for various
5 materials, mostly metals. We looked at steel, copper,
6 aluminum, concrete and equipment for reuse that could likely
7 enter into U.S. commerce.

8 The evaluation was designed to identify groups of
9 individuals likely to receive the highest dose. The NUREG
10 is currently out for comment. Although the comment period
11 officially closed, the staff will continue to accept
12 comments through June of this year. The staff is also
13 developing scenarios for soil reuse that was not included in
14 1640, and that will be factored into the overall analysis of
15 the individual doses.

16 The next piece that we are working on is the
17 inventory of materials and equipment. This effort will
18 estimate the types and amounts of material and equipment
19 that might become available for clearance and it is needed
20 to estimate potential population doses, as well as to
21 analyze the costs and benefits.

22 The next piece deals with the doses to
23 populations. In addition to assessing collective population
24 dose, doses that might arise from exposure to multiple
25 sources will also need to be estimated.

15

1 The next piece involves costs. This work is based
2 on the estimates of the inventory that is potentially
3 available and includes an estimate of the costs associated
4 with that collective dose, with surveying, transportation,
5 disposal and certain non-radiological risks associated with
6 the materials that we talked about earlier.

7 The next piece that will need to be evaluated is
8 the environmental impact. Once all these other pieces, that
9 is the inventory, the dose assessment and the cost data are
10 obtained, the staff will need to look at environmental
11 consequences, both radiological and non-radiological
12 impacts, and socioeconomic considerations.

13 And the last piece is the measurement methods.
14 This is the major technical challenge associated with the
15 effort that the staff is undertaking, because what we need
16 to do is find a means of measuring residual radioactivity at
17 near or background concentrations.

18 The information is being developed to address
19 media where the radioactivity is distributed throughout the
20 volume of a sample. The staff is looking at various methods
21 and analyses that are available for different types, sizes,
22 and shapes of material that might be available for release,
23 as well as the cost to conduct these surveys.

24 Next slide, please. Now, I will speak briefly to

25 some of the issues associated with the development of the

16

1 technical basis. Under the first, the technical review of
2 doses to individuals, that NUREG that I mentioned earlier,
3 1640, the public comments need to be addressed and the NUREG
4 needs to be finalized. The NUREG underwent a rigorous QA
5 process in its development, and during the time that it was
6 being developed, the staff worked extensively with the
7 Environmental Protection Agency and the International Atomic
8 Energy Agency, both who have been in the process of
9 developing similar doses for clearance of material over the
10 last six years in an attempt to harmonize the technical
11 issues.

12 However, to address concerns recently raised about
13 the credibility of this NUREG, the staff plans on conducting
14 an independent technical review of the models and
15 assumptions used in the NUREG prior to finalizing it.

16 The other issue that I would like to speak to is
17 the conflict of interest issue. As a result of terminating
18 the existing technical support contract, development of the
19 technical bases needed to support the subsequent Commission
20 decisions will likely be delayed. The staff is proceeding
21 to initiate new contracts, but the existing schedule could
22 be delayed by up to nine months.

23 Certain work was not impacted directly by the COI,
24 such as the development of information on measurement
25 methods which we are currently undertaking and the

17

1 information on dose estimates for soil usage, because the
2 staff is doing this in-house.

3 And that concludes my remarks. I will turn that
4 over to Don Cool now.

5 DR. COOL: Thank you, Cheryl.

6 Next slide, please. The considerations of
7 controlling solid materials are both global in impact and in
8 consideration. This is maybe one of the hottest topics of
9 discussion in the international community and in various
10 regulatory organizations that is going on today. A great
11 deal of the focus of those discussions has been in two
12 forums, the International Atomic Energy Agency and the in
13 the European Union, European Commission.

14 Let's talk first just briefly about the European
15 Union. A directive published on May 13th of 1996 was
16 intended, is intended to have the European Union countries
17 adopt the new basic safety standards and recommendations
18 coming out of ICRP's Publication 60. So that directive is a
19 broad wide-ranging directive which covers the entirety of
20 radiation protection and brings it up to date with those

21 recommendations of the ICRP.

22 One portion of that directive does specifically
23 address the topic of clearance. Internationally,
24 "clearance" is the term used to deal with the process for
25 moving material from a situation where controls are imposed

18

1 to a situation where no regulatory requirements are in place
2 any time. We have chosen in the purposes of our discussions
3 not to use that term, "clearance," in essence, being a
4 subset of the wider ranges of issues relating to all the
5 things that you might possibly do, including potentials for
6 restricted release and otherwise. But, internationally, the
7 term that you will always hear is the word "clearance."

8 At this point the directive is to be in place by
9 the 13th of this month. European Union member states are
10 supposed to have transposed their legislation and regulatory
11 requirements to be in line with that directive by that date.
12 I think it is safe to say that there is a variety of places
13 at which those member states are at this point, ranging from
14 a couple of countries who will likely have completed their
15 transposition by that date, to others that will be at
16 various other stages of that situation.

17 COMMISSIONER DIAZ: Excuse me, Mr. Chairman. That
18 is mandatory?

19 DR. COOL: It is mandatory, yes. Following that
20 date, and my discussions with folks from the European
21 Commission who are dealing with this subject have indicated
22 that there is not going to be an extension of that date.
23 There is then a process whereby, first, the European
24 Commission would make a prima facie finding, some letters of
25 recommendation, some further fact-finding which might

19

1 eventually lead to a further reasoned opinion case, is I
2 think the term which they use. Theoretically, this could
3 end up in the European courts. That process tends to take a
4 fairly long period of time, and, of course, the process will
5 be continuing throughout that, so it is essentially
6 impossible at this moment to predict how those processes
7 might proceed.

8 Member states, in essence, have a similar sort of
9 situation perhaps to what we have here in the United States
10 in that a member state of the European Union does not have
11 to adopt exactly the pieces of the directive. They can be
12 more restrictive, particularly when you get to the details
13 with regards to concentrations and quantities of material.
14 So we expect that there will be some variations in the
15 approaches that will end up in the individual national
16 legislations and regulations in terms of some of those
17 details.

18 The European Union directive is a dose-based
19 criterion, the 10 micro-sievert or 1 millirem per year
20 criteria. The directive itself which goes in place has a
21 table associated with it that is the exempt concentration
22 and quantity tables. There is, proceeding in parallel with
23 this, the technical work for additional tables associated
24 with clearing larger quantities, other volumetric quantities
25 of material, and those are at various stages of publication

20

1 review transmittal throughout the European Union.

2 The International Atomic Energy Agency is in a
3 similar sort of situation. The basic safety standards for
4 radiation protection and the safety of sources was published
5 in 1996. It also has the topic of clearance in it. It is
6 also a dose-based criterion at the 10 micro-sievert or 1
7 millirem per year level. The basic safety standards also
8 have a table associated with exempt concentrations and
9 quantities. Those tables are, in essence, the same between
10 the European Union and the International Atomic Energy
11 Agency's basic safety standards.

12 IAEA has had in place since 1989 a Safety Series
13 Number 89 dealing with exemption and exclusion. They have
14 had a process ongoing for some number of years now to revise
15 and update that and include the concept of clearance. That
16 document is focused primarily on the philosophy and
17 approach, the definitions, the sorting out of those sorts of
18 details rather than the technical modeling which translates
19 a dose to a particular concentration or a quantity.

20 At this point in time that document is still under
21 active consideration. It was reviewed by the Radiation
22 Safety Standards Committee of the IAEA just three weeks or
23 so ago, and sent back to the Secretariat for numerous
24 possible changes and considerations. It is not at all clear
25 at this point whether, in fact, that will even remain as a

21

1 Safety Series document in that IAEA, in its structure for
2 Safety Series standards and reports, has moved to a format
3 where their safety standard guides are supposed to be very
4 similar to our Regulatory Guides, "should" type statements,
5 and much of what is currently contained in that document is
6 explanatory material, thus, it may not survive as a Safety
7 Series guide when IAEA finally completes that.

8 IAEA is also working through the process of
9 revising an update technical basis work which would
10 translate the dose criterion, the 10 micro-sievert, to a
11 particular concentration or quantity for any of a large
12 number of isotopes. What is referred to as a Tech Doc, or a
13 Technical Document, Number 855 was published by IAEA back in

14 about '96 and is currently being looked at, revised, updated
15 to bring the models into line, with a view of trying to get
16 harmony between the various groups that are looking at and
17 trying to do this modeling, including the European Union,
18 including the activities that we in the Environmental
19 Protection Agency have been doing in this particular area.

20 The whole issue brings to light once again the
21 question of, what happens when material which potentially is
22 cleared from controls someplace enters the United States?
23 The fact that there is a great amount of activity going on
24 right now doesn't change the fact that materials are being
25 cleared today under individual legislations and activities

22

1 from a variety of places, inside and outside of the European
2 Union, nor does it change the fact that occasionally
3 material comes into the United States and we either, at the
4 point of entry, or actually more often at some later point
5 inside of the United States, detect the presence of some
6 quantity of radioactive material.

7 We have had over the years to respond to a number
8 of circumstances where material has shown up, and attempt to
9 determine exactly what should be done. The Environmental
10 Protection Agency, under the Federal Emergency Response
11 Plan, is the lead agency for dealing with these types of
12 situations, and they and the State Department, in fact,
13 entered into a Memorandum of Understanding last fall to try
14 and work through some of the issues associated with how to
15 view and deal with criteria for what to do with the import
16 of material when radioactive material is detected.

17 That is not to say that there is, in essence, a
18 survey program which would survey all material which might
19 be shipped into the United States. The Department of
20 Treasury, Customs people have little radiation pagers.
21 Every once in a while those will trip and tell us something.
22 But more often you have the situation as we had a year,
23 year-and-a-half or so ago, where material will enter the
24 country, some processing or otherwise may happen, and then
25 at some point it finds one of the detectors, and they you

23

1 have to try and backtrack to determine what material is in
2 what location and what may have already been utilized in
3 some way, what material may still be in the raw form, or the
4 form in which it was entered into the country.

5 But the issues remain and will become exacerbated
6 through not only the formalization of standards in the
7 European Union, the IAEA, but the fact that the issues
8 associated dismantling, decommissioning and other sorts of
9 activities in a variety of countries, the former Soviet
10 Union and other places, is accelerating and, thus, the

11 potential for materials moving about in the global commerce
12 is increasing.

13 If I can have the next slide. That then leads the
14 staff to a set of four recommendations, the first two of
15 which are on this slide. In keeping with the SRM from the
16 Commission of March 8th, we have been working to prepare the
17 appropriate contracting Statement of Work vehicle for the
18 National Academy of Sciences to move forward with that
19 independent examination and attain some recommendations

20 Secondly, we believe it is important to continue
21 the development of the technical bases work that needed to
22 be done. The variety of issues which Cheryl outlined remain
23 yet to be resolved and the details laid out. That
24 information will be important to us and the Commission, as
25 well as other organizations more or less irrespective of

24

1 some of the possibilities in terms of a final direction and
2 recommendation which may come out.

3 Third, the next slide, please. We would continue
4 to stay informed and actively involved with the
5 Environmental Protection Agency, State Department,
6 Department of Energy, Customs, Treasury, you could run down
7 a very long list of agencies who all have various little
8 pieces and activities in this to try and understand the
9 international activities that are going on, the implications
10 for us, the precedents or otherwise that that may pose for
11 us, as well as the issues of what kinds of materials might
12 enter the United States.

13 And then, lastly, in view of the fact that we are
14 asking the National Academy to provide us some
15 recommendations, and the current situation in terms of the
16 developments, we believe that it would be appropriate to
17 defer a final decision with regards to the specific
18 direction for proceeding, either in terms of rulemaking or a
19 specific technical approach, until we can have the insights
20 from the National Academy on particular approaches and
21 activities which might allow, not a consensus, but at least
22 a direction where we could gain sufficient agreement to
23 allow the agency to proceed.

24 And that concludes the staff briefing.

25 CHAIRMAN MESERVE: Thank you very much for a

25

1 helpful briefing.

2 Let me turn to Commissioner McGaffigan to start
3 off, see if he has some questions.

4 COMMISSIONER MCGAFFIGAN: Mr. Chairman, just to
5 clarify, are we going to try to do two rounds of questions,
6 because obviously you could sit here all day asking

7 questions on this subject but you don't want that either, so
8 how do you want me to proceed?

9 CHAIRMAN MESERVE: I had envisioned we would
10 follow our normal process of one round in questions --

11 COMMISSIONER MCGAFFIGAN: One round?

12 CHAIRMAN MESERVE: -- but if there is consensus
13 that people have a lot more to do, we could probably do it.

14 COMMISSIONER MCGAFFIGAN: Okay. I have lots of
15 questions, some of which can go till next week, but I would
16 like to ask a few today and get ready for that.

17 Slide 6 talks about the metal, scrap and cement
18 industries' concerns with regard to a release criterion for
19 solid materials. Theoretically this could also apply to
20 surface contamination materials that have different case by
21 case rules.

22 The cement industry, they actually are opposed to
23 release. I haven't read their stuff. I have read the steel
24 industry's. I just want to start with cement.

25 Do they realize -- I mean isn't coal ash routinely

26

1 used in concrete and cement products, and do they realize
2 the amount of technologically enhanced norm that there is
3 already in their material? As I understand it, a building
4 built with that sort of material, as many buildings are --
5 brick -- brick is radioactive, lots of things are
6 radioactive -- but, you know, you get 20 or 30 millirems a
7 year. If you are unlucky enough to work in the Capitol I
8 think the late Carson Mark from Las Alamos did some work
9 around the Library of Congress building that was well over
10 100 millirems a year that people got if they spent eight or
11 10 hours a day in that building, so the question I have, and
12 maybe it is more for the folks next week, although the
13 cement industry is not represented in my recollections, just
14 steel folks, do they realize just how much radioactivity is
15 already in building materials?

16 MR. CARDILE: In answer to your first question,
17 they are -- they have submitted a letter. We could make
18 sure that we get you that letter for you to review before
19 next week, but in their letter they cite similar reasons to
20 being opposed to this as the steel industry, namely that
21 there would be problems with purchasing, consumers wanting
22 to purchase their product.

23 They also suggest similar concerns about the
24 transfer --

25 COMMISSIONER MCGAFFIGAN: Is there any building

27

1 material that we are aware of that could be used, that could
2 get us a house or a building where we would get no
3 radiation?

4 MR. CARDILE: Well, they cite, this issue of the
5 fly ash, coal ash came up at the Chicago public meeting
6 where the cement industry representative was there. They
7 also address it in their letter and the indication in the
8 letter and at the meeting was that, yes, this was something
9 that happened I guess in the '80s where this was directed
10 that they should take this material but that (a) that
11 doesn't necessarily justify what we are doing here; and (b)
12 at the Chicago meeting it was discussed that perhaps if
13 these issues, these discussions would have been held then
14 that perhaps this also would have been raised as an issue.

15 COMMISSIONER MCGAFFIGAN: Well, those aren't our
16 issues. Coal ash is regulated or not by the Environmental
17 Protection Agency. I mean it is identified as a
18 technologically enhanced norm, as it should be. It can be
19 quite hot, as we all know, and 500 picocuries per gram of
20 uranium thorium can easily be in it.

21 Just recently the Environmental Protection Agency
22 decided not to, pursuant to the Bevill Amendment, not to
23 regulate coal ash. There was an article in Foreign Affairs
24 earlier this year about the fact that the old AEC some time
25 in the '50s actually thought about coal ash, defining it as

28

1 source material. If the price of uranium were high enough
2 we might actually be mining uranium from coal ash, and part
3 of the discussion as I understand it that went into the coal
4 ash decision at EPA last week was that there are beneficial
5 uses including in agriculture.

6 I mean this stuff I guess is used in fertilizers
7 as well, so we will have to have that discussion next week,
8 but just for the public listening to this, it is hard for me
9 to understand the notion that one millirem per year, if that
10 is the ANSI standard, the IAEA suggestion, the EC standard,
11 why that is such a dire problem given the tolerance for
12 these materials elsewhere.

13 Carl seemed to want an answer. Is there a
14 building material? It really goes to the steel industry as
15 well. I mean steel is mostly used, I mean it is partly used
16 in flatware. A lot of it is used in building buildings and
17 then it is surrounded by concrete or whatever, and I assume,
18 number one, steel I suspect has some radioactivity in it
19 just naturally because you can't -- you know, it is mined
20 and has uranium and thorium and radium, whatever, with it,
21 but then the material it is surrounded with has
22 radioactivity in it.

23 DR. PAPERIELLO: I suspect plastics made with
24 petrochemicals might be the coldest material you can use. I
25 have come across an article --

1 COMMISSIONER MCGAFFIGAN: But even that has
2 radioactivity in it.

3 DR. PAPERIELLO: Even glass has radioactivity in
4 it. I am -- there's probably nothing if you use the term
5 zero, but you know, you are aware that I met with the metal
6 industry, a separate meeting with the metal industry to try
7 to understand their concerns, and their concerns are very
8 much economic and perception.

9 They did not represent to me too strongly that the
10 material was dangerous but rather that if I make steel
11 beverage cans, and that is a big part of the industry, and
12 even a small percentage of the public refuses to buy that
13 product, that represents a serious economic loss and their
14 competitors, supposedly in another industry that doesn't use
15 material that is recycled, will then advertise the fact "Our
16 containers are pure."

17 I mean recognizing there could natural material
18 and it's just --

19 COMMISSIONER MCGAFFIGAN: There is one part of,
20 and I don't want to go on forever here, but there is one
21 part of -- although I could -- there is one part of the
22 stuff I came across recently in, I think it was in
23 Nucleonics Week, that it referred to the Codus Alimentarius,
24 which is apparently a food code that has some standards in
25 it for radioactive material in food, and I am not sure

30

1 whether it is the U.N. Food and Air Culture Organization --

2 DR. PAPERIELLO: Yes.

3 COMMISSIONER MCGAFFIGAN: -- that puts it out?

4 DR. COOL: It is.

5 COMMISSIONER MCGAFFIGAN: You could get into the
6 situation where easily, as I understand the Codus
7 Alimentarius discussion, where you have these pristine
8 containers and then radioactive food inside it, because we
9 know food is radioactive, right?

10 I mean the brazil nuts and bananas and the
11 phosphate fertilizers that are used by the farmers to grow
12 the food has radioactive material in it which then gets
13 captured in the food, but have you all looked at the Codus
14 Alimentarius and come up with guesstimates? Does that use a
15 dose criterion or does that use concentration limits in
16 terms of trying to decide how radioactive food should be?

17 DR. COOL: That has, and I have not looked at it
18 lately to verify this, that has concentration values and was
19 designed to be a level at which you would interdict food
20 supplies following an event.

21 COMMISSIONER MCGAFFIGAN: So it is not for
22 everyday use?

23 DR. COOL: It is not typically for everyday use.
24 It is for a situation, it was put in place post-Chernobyl
25 for a situation of when you would cut off or restrict food

31

1 supplies from the transport system, so it has a slightly
2 different purpose and for that reason has levels which would
3 not necessarily be the same as what you would want to do for
4 a typical what I want to eat every day.

5 COMMISSIONER MCGAFFIGAN: Two more quick
6 questions, I hope.

7 One of the issues mentioned in the paper, and I
8 could pull out the exact quote, but the industry is
9 concerned about their sensors going off if material is
10 cleared and the big issue, one of the big issues was in
11 Tennessee, this MSC material that was going to have minute
12 amounts of Technetium-99 in it.

13 Technetium-99 is a beta emitter, a low energy beta
14 emitter that largely self-shields and if it were right there
15 I wouldn't get anything right here. Could their detectors
16 possibly detect the nickel that was going to come out of
17 MSC? Possibly?

18 DR. PAPERIELLO: I had a meeting down at the Hill
19 last week with representatives of the metal industry and
20 some Congressional representatives. Actually I raised the
21 issue and they acknowledged that they would not be able to
22 detect Technetium-99 with the systems they have.

23 COMMISSIONER MCGAFFIGAN: But they have gamma
24 emitters, right?

25 DR. PAPERIELLO: They can detect gamma emitters

32

1 and a few have a reasonable amount of Strontium-90 they
2 would probably be able to detect the bremsstrahlung from
3 very high energy beta emitters like Strontium-90. If you
4 had a pure alpha emitter, and I don't know too many alpha
5 emitters are really pure alpha emitters, the problem with
6 using detectability is it is not a risk-based standard.

7 COMMISSIONER MCGAFFIGAN: I understand that.

8 DR. PAPERIELLO: And you would have a drastic
9 range of risk --

10 COMMISSIONER MCGAFFIGAN: But part of the issue, I
11 mean partly I want to make sure that we are dealing with
12 facts as we go through these things, and detectability is
13 not necessarily a good standard but the issue came up with
14 the nickel as to whether it would set off their detectors.

15 As I understand what sets off detectors, 90
16 percent of what sets off detectors at scrap yards and steel
17 mills is norm, T norm --

18 DR. PAPERIELLO: Right.

19 COMMISSIONER MCGAFFIGAN: -- and then there is an
20 occasional orphan source from our regime, but it just
21 strikes me that when assertions are made that the material
22 is going to set off detectors which obviously aren't true we
23 need to deal with that, or in that case maybe the state of
24 Tennessee needed to deal with that because it was their
25 regulatory process that was being challenged.

33

1 I have lots of other questions, but I will defer
2 at this point and see if there is a chance for another
3 round.

4 CHAIRMAN MESERVE: Commissioner Diaz.

5 COMMISSIONER DIAZ: Yes. Mr. Chairman, see, I
6 want to try to claim my two questions in two separate
7 issues.

8 First is a policy issue. I understand well the
9 concerns of the industry regarding economics and
10 acceptability, obviously a very valid case, not a safety
11 case, and just want to point out that when the Commission
12 started down this road the clear issue was and still remains
13 that we want to do those things that pertain to the best job
14 that we can do regarding public health and safety and that
15 has not changed and that we are considering those things in
16 the proper priorities and scale.

17 From that case, you know, and from the time I have
18 been here I have found out, and I hope that everybody agrees
19 but if you don't please let me know, that rulemaking is the
20 best tool that we have, the most comprehensive tool that we
21 have to address an issue that is associated with public
22 health and safety.

23 When we want to do something that is protective,
24 that considers all aspects we enter into rulemaking.

25 My concern at the present time is that groups of

34

1 all different sorts seem to be wanting not to do rulemaking
2 when rulemaking is the best thing that we can do -- whatever
3 shape it ends up with -- but the process is the best process
4 that we have, and rulemaking by the NRC to me is the most
5 open, complete process we have to address issues of public
6 health and safety.

7 Therefore, I am a little bit concerned that we are
8 deferring and redoing and doing and I know there are
9 conflicts of interest, but I still believe that there is a
10 pathway that existed that will be the best pathway for
11 protection of public health and safety.

12 I would like the Staff to answer is rulemaking the
13 best pathway for us to consider an issue or public health
14 and safety, and if so, why are we deferring? Deferring is a
15 word that causes me concern because it seems like we are

16 going be putting things off while I think the development of
17 those technical bases is fundamental to the protection of
18 public health and safety.

19 DR. PAPERIELLO: Let me try to answer that
20 question.

21 If we proceed on a rulemaking starting now, it is
22 not at all clear what the National Academy study would
23 achieve. It is not clear that anybody that we would want
24 the National Academy to engage with would pay much attention
25 to the National Academy and instead would concentrate on

35

1 what we are doing, and so if you are asking the National
2 Academy to give you recommendations it almost seems we are
3 precluding or making a judgment. I mean we are giving you
4 our best advice with all the things that we are pulling
5 together, but I would agree with you that to resolve this
6 issue once and for all we ought to go to rulemaking because
7 that is what we did on decommissioning.

8 I mean we had been ad hoc'ing decommissioning for
9 years through licensing. We went with a rulemaking. I
10 think the way to deal with this ultimately will be through
11 rulemaking. Right now it is just a question of the timing
12 and how does the National Academy work fit in with the rest
13 of what we are doing.

14 So you are getting out best judgment in trying to
15 put the pieces together, but I guess our view is if we go to
16 rulemaking starting now, the people that we would like to
17 engage with the National Academy probably concentrate on us
18 and not ignore the National Academy.

19 COMMISSIONER DIAZ: I didn't ask for the timing.
20 I just wanted to clearly establish whether rulemaking is the
21 best process that we have. The timing is the second issue.

22 DR. PAPERIELLO: Okay, I understand, but I would
23 agree with you. Rulemaking is the best way to go.

24 COMMISSIONER DIAZ: Okay. Now on the issue of the
25 timing, you know we have the National Academy of Sciences

36

1 study. The Commission has accepted to go that route. In
2 the meantime that brings me to the technical basis and the
3 technical issues.

4 I fully agree that the most pressing issue is the
5 issue of the determining what is measurable and how can we
6 measure it, and there is no doubt about that. In fact, if
7 you look at the Staff briefing at the very beginning we use
8 the words "detectability," "undetectability" and there is
9 nothing in the world, nothing that I cannot detect some
10 radioactivity on. You know, there is absolutely nothing,
11 okay? I mean if you give me enough time and a precise

12 instrument I can detect it -- there is just absolutely no
13 way. Therefore, you know, I think measurability in terms of
14 public health and safety becomes the issue.

15 My point on timing is that that should not be
16 deferred to the National Academy of Sciences study. That is
17 an issue that we need to tackle urgently. That is an issue
18 that impacts not only on control of radioactive materials
19 but is an issue that is central to the mission of this
20 Commission which is radiological protection, and therefore
21 measurability -- how do we measure and in our case how do we
22 measure doses is an issue of tremendous importance.

23 Therefore, I would like to ask the Staff what
24 steps are we going to take now up till the end of this
25 process to accelerate and make the very best expedient

37

1 efforts to determine the issue of measurability of radiation
2 doses.

3 MS. TROTTIER: We are in fact continuing to work
4 on developing the measurement methods. That piece has not
5 been impacted by the conflict of interest. Those contracts
6 are ongoing.

7 While there were pieces from the technical support
8 contract that were terminated that were needed by the
9 contractors working on the measurement methods, primarily
10 the inventory, that would help them assess areas to work on,
11 they have been able to readjust their schedule and they are
12 continuing to work on that.

13 We are not waiting for the National Academy to do
14 any of the technical bases. We will continue to work on the
15 technical bases. The only thing that is holding us up is
16 the amount of time that we will need to initiate new
17 contracts, because it is not a really quick process, but we
18 are trying to expedite it as much as possible.

19 COMMISSIONER DIAZ: You know, sometimes on an
20 issue like this just rather than starting it all new, just a
21 validation or rejection of whatever data is there might be
22 the most expedient way. We used to be able to do that.

23 But I just want to emphasize -- I am sorry -- that
24 this issue is not dependent upon the National Academy of
25 Sciences. That is an issue by itself and it needs to be

38

1 expedited. That is, it needs to be done in the most
2 complete, technical, competent manner that we can do.

3 I don't think there is an issue around that
4 requires more technical competence and depth than the issue
5 of measurability, because it is not detectability. If we go
6 to detectability you might as well leave the earth and go
7 someplace else. Thank you.

8 COMMISSIONER MCGAFFIGAN: That's a high radiation

9 environment outside here, this atmosphere, but watch out.

10 COMMISSIONER DIAZ: Thank you.

11 CHAIRMAN MESERVE: Let me just comment, if I may
12 just step out of turn, on one of the focus of the questions,
13 and this is for the benefit of the public, that the
14 Commission has decided to go forward with the National
15 Academy of Sciences study as a vehicle for resolving some of
16 the issues that are confronted with us. There are others,
17 as Dr. Diaz has indicated, that perhaps are ones that -- and
18 the Staff has recommended that there are others that we
19 should proceed with in parallel with the Academy study and I
20 think it was the view of the Commission as a whole that
21 integrating efforts that the Staff would undertake in
22 parallel with output from the Academy would put us in a
23 position, number one, to decide whether to proceed with the
24 rulemaking but also if we do so we'll have amassed a source
25 of information that will enable us to respond to the many

39

1 questions that have been raised by the public.

2 Let me turn to Commissioner Dicus for questions.

3 COMMISSIONER DICUS: Let me go to -- this is on
4 Slide 6. Most of the recycling in the steel mills, what do
5 they set their detecting levels? Two, three times
6 background -- is that about right? Do you know?

7 CHAIRMAN MESERVE: Tony?

8 MR. HUFFERT: It depends on the steel mill and the
9 type of detector they have. They are increasingly using
10 more sensitive instruments. They are using very large area
11 detectors and this can get down to very close to background
12 and they can actually discern by just taking the general
13 counts -- they are not doing spectrometric measurements,
14 they are only taking gross counts at this point -- and they
15 are trying to see how it changes as the vehicle moves
16 through, so as the vehicle moves through they are trying to
17 detect the radioactivity, so it is a very small fraction of
18 background.

19 COMMISSIONER DICUS: Okay. Then let me go in this
20 direction. If we were to proceed with the rulemaking, and
21 if we set a limit about 1 millirem, and if we included
22 recycling, and I want to emphasize those "ifs" for
23 everybody -- the Staff as well as members of the public --
24 because we haven't made decisions on this, can they detect
25 that?

40

1 MR. HUFFERT: I can tell you what the steel
2 industry has told us. They hired a certified health
3 physicist to do an analysis. He took a look at the
4 concentrations in NUREG-1640 equivalent to 1 millirem. He

5 made some assumptions about the loading of materials in a
6 tractor-trailer combination, and he determined that certain
7 radionuclides at that level were detectable if they were in
8 a large mass and they didn't rig the shipments so that there
9 was a lot of self-shielding, so that was his conclusion.

10 COMMISSIONER DICUS: It's possible they couldn't
11 be detected as well?

12 MR. HUFFERT: That's correct. It depends on the
13 radionuclide, the high energy beta gamma emitters.

14 COMMISSIONER DICUS: The amount, okay, and the
15 self-shielding. I understand all that.

16 CHAIRMAN MESERVE: Would they alarm at that level?

17 MR. HUFFERT: His analysis said yes, that certain
18 radionuclides could alarm.

19 CHAIRMAN MESERVE: Go ahead.

20 DR. PAPERIELLO: I went to the Mid-Year Health
21 Physics Symposium this year because it was dedicated to
22 instrumentation and between presentations by actually
23 representatives of the steel industry, presentations by
24 individuals just on in situ gamma spectroscopy, and meeting
25 with vendors, for some radioisotopes, particularly those

41

1 that are high energy gamma emitters, there are instruments
2 available that could detect concentrations of radioactivity,
3 gamma emitting radioactivity, that would result in a dose at
4 1 millirem -- in other words, they can get lower.

5 In fact, one vendor was selling a drive-through
6 Cobalt-60 detector that was based on gamma gamma
7 coincidence. This is a problem with detection again. Some
8 elements for a whole variety of reasons are easier to
9 detect. It's unrelated to dose, so just to back up
10 something that Commissioner Diaz said that was extremely
11 important. The emphasis is -- sampling is important for
12 non-gamma emitters because you don't know whether or not you
13 have homogeneity. If you have heterogeneity just coming up
14 with the sampling protocol is going to be a problem, so it
15 even goes beyond -- but we are working on this.

16 We are looking at all of these things, but the
17 answer to your question is yes, you can, and the equipment
18 is commercially on the market today, and not just built for
19 the steel industry. The in situ gamma spectrometers that
20 are being sold for the purposes of decommissioning, for some
21 elements can get detectable limits below 1 millirem per
22 year, but it is just certain elements.

23 COMMISSIONER DICUS: In the presence of
24 background?

25 DR. PAPERIELLO: In the presence of background,

42

1 yes.

2 COMMISSIONER DICUS: Okay. The draft NUREG-1640,
3 I know you said some of these other documents that we need
4 there will be a nine-month delay due to the conflict of
5 interest. How about NUREG-1640?

6 MS. TROTTIER: We are anticipating publishing that
7 as a final document in January and that allows us time to do
8 one more independent review, which we hope to complete by
9 September and incorporate our review of the public comments
10 and finalize the document.

11 COMMISSIONER DICUS: Okay, and one final question
12 has to do with the Customs. I think you mentioned -- of
13 course we are working with the Department of State and et
14 cetera, and U.S. Customs has been involved.

15 Did they attend any of our public meetings and to
16 what extent are they involved with this?

17 DR. COOL: I do not believe we had anyone actually
18 representing Treasury, the Customs group. Folks from the
19 State Department and EPA were in attendance at if not all, I
20 think all of the meetings.

21 COMMISSIONER DICUS: Okay, thank you.

22 CHAIRMAN MESERVE: When you were discussing Slide
23 10 that had to do with your development of work on various
24 technical issues you indicated that you had been working
25 with EPA, and IAEA, in trying to develop that approach.

43

1 You didn't go on to say whether there had been
2 issues that had been raised by either EPA or IAEA as to the
3 approach we are taking, the questions we are raising and
4 problems, and can you in terms of the technical work you
5 have done, in particular was EPA raising any questions?

6 MS. TROTTIER: No. In fact, what we have
7 attempted to do is harmonize the results, because both EPA
8 and IAEA have done similar calculations to the ones that are
9 in 1640. I believe we are down now to a factor of about two
10 to three difference between, at least with the EPA and I
11 think that is true with IAEA also.

12 Bob Meck, the Project Manager, is in the audience.
13 I will ask him.

14 MR. MECK: My name is Robert Meck, with the Office
15 of Research. Yes, over the last six years we have had an
16 excellent working relationship with EPA on the technical
17 development. We are down to a factor of three in our
18 approach, which is by modelers considered excellent
19 agreement given the uncertainties involved, and with the
20 IAEA we are working towards those same kinds of agreement.

21 Their needs are somewhat different from those of
22 the U.S. in that they have a spectrum of 129 countries, some
23 of which are more and less developed, and so the scenarios

24 that are reasonable to consider in some of the developing
25 countries may lead us to some more restrictive levels, but

44

1 in general the harmonization is remarkably consistent.

2 CHAIRMAN MESERVE: On a factor of three difference
3 are we more conservative than EPA or not?

4 MR. MECK: It varies. Sometimes we are more
5 conservative and other times the EPA is more, depending on a
6 radionuclide by radionuclide basis.

7 CHAIRMAN MESERVE: You didn't mention it in the
8 presentation, but the SECY paper indicates that the
9 Department of Energy has formed some type of a task force
10 that is looking generally at this area. Do we know what
11 that task force is up to? Have we got any connections to
12 it? What is the timeframe for their work?

13 Is that going to be helpful to us?

14 DR. COOL: You're correct. They have formed a
15 task group following the Secretary's decision back earlier
16 this year on volumetrically contaminated materials.

17 We in fact had a meeting with the head of that
18 group --

19 CHAIRMAN MESERVE: Is that a staff group?

20 DR. COOL: -- just last week. That is a staff
21 group. It is headed by a Special Assistant to Director
22 Richardson, a blue ribbon panel, if you will. I am not sure
23 I have the exact terminology.

24 My understanding is that they have had one
25 publicly observable interaction and that at least one of

45

1 their next steps involves going and looking at the different
2 practices that are presently existing within the DOE
3 complex.

4 Many I could turn to Tony or Frank for any other
5 insights because you were at that meeting and I was not.
6 Tony?

7 MR. HUFFERT: Yes, we met with Frank Costner and
8 Steve Carrier from the Department of Energy last week. We
9 were invited to meet with them to talk about our clearance
10 work.

11 They as Don said are polling their offices to see
12 what the current practice is. They are also looking into
13 the possibility of having a dedicated melter established for
14 recycling metals.

15 We did not get into very much detail about the
16 task force and the next meetings. It was a very general
17 meeting in that respect.

18 DR. COOL: To come back to your last statement, it
19 is not clear at this point exactly what timeline that task
20 group is on. Certainly it is our intention to try and stay

21 in touch with and aware of the thing they come up with, and
22 to the extent that we can mine that for data, insights or
23 other things, we intend to do so.

24 CHAIRMAN MESERVE: Thank you. When you were
25 discussing the EC and the IAEA efforts, you described them

46

1 as both of them having a dose base and then deriving, as I
2 understood it from the dose concentration tables.

3 I presume that is being done by some sort of an
4 all pathways analysis of the type with which we are
5 familiar?

6 DR. COOL: Each of those modeling efforts involve
7 a variety of pathways, as we have done. There are some
8 differences in terms of how you reach a particular end-
9 point. When we have done our modeling we have gone through
10 and summed up all the little individual bits and pieces.

11 My understanding is one of their observations is
12 that for any given radionuclide one pathway is always the
13 dominating one, so I believe at least in some of their cases
14 they have gone with a most restrictive pathway scenario to
15 pick their number, as opposed to a summation, but that they
16 have looked at the wide spectrum of possible scenarios in
17 going through each radionuclide.

18 CHAIRMAN MESERVE: You indicated I think that they
19 had some of these concentration tables that had been
20 developed and others were still in the works.

21 Are they having a problem on the volumetric side
22 or surface contamination or is it that they haven't got all
23 the isotopes yet, or what is the state of their technical
24 work?

25 DR. COOL: I would in fact I think characterize it

47

1 almost exactly in the same place as ours. They are
2 continuing to develop, elaborate, verify and harmonize those
3 models between the EC, the IAEA, and things which are being
4 done nationally, the U.S. being one of the principal
5 contributors to that.

6 In each case, each agency's, each organization's
7 case there is a draft which is out floating around and they
8 are working to elaborate and amplify.

9 CHAIRMAN MESERVE: What distinguishes the tables
10 they have completed and the tables that they are still
11 working on?

12 DR. COOL: I am going to turn to Bob Meck to give
13 you that detail, because you have gone about one level
14 deeper than I have.

15 MR. MECK: Right. Just to give you some context,
16 I have been a consultant to the IAEA on several occasions in

17 terms of the writing of the technical details. The
18 approaches that the IAEA are using emulate those of the
19 European Community and, as Dr. Cool mentioned, the pathway
20 analyses are generally for a dominant pathway for a
21 radionuclide but they take into account assumptions and
22 parameters that would apply to the country -- I am speaking
23 for the IAEA now -- that would apply to the broad spectrum
24 of countries and in making those judgments.

25 It comes down to ultimately making judgments of

48

1 what is appropriate in terms of assumptions and pathways for
2 reasonable scenarios and the differences, the status of
3 where we are now, comes -- harmonizing differences of
4 perceptions between the various countries that are
5 contributing to the technical development and so where we
6 are at today, we worked in February of this year and came to
7 very close agreement with the EC numbers at the IAEA.

8 it was decided that we needed more clarification
9 of what the process was, and so we anticipate another
10 consulting group in June of this year to finalize those
11 numbers and given that the EC will have passed their
12 deadline for compliance, we expect that we will have some
13 firm numbers to compare against at that time.

14 CHAIRMAN MESERVE: At the end of this you
15 anticipate that throughout the EC, if I understood you
16 correctly, there will be clearance rules and there will be
17 toleration of release of materials that will lead to small
18 amounts of radioactive exposure to the public?

19 DR. COOL: Yes. What we anticipate is that each
20 of the member states of the EC will adopt into their
21 legislation a regulation, a provision that deals with
22 clearance.

23 There may be some slight variation in the exact
24 levels that they select in terms of their translation of
25 concentration or quantity. Some may choose to do it by

49

1 groupings rather than a radionuclide by radionuclide basis.
2 The net effect will be exactly as you stated.

3 CHAIRMAN MESERVE: Now I think we all know that
4 metals are imported into the United States from Europe
5 including in automobiles that some of us can afford and
6 maybe many of us like me can't but -- and other things.

7 Have we had any conversation with the metals
8 industry about how they are going to handle scrap that
9 derives from imported materials?

10 DR. COOL: On that specific subject, not as an
11 identified agenda topic per se.

12 The scrap industry I believe would represent to
13 you, and you can check this next week, is well aware of this

14 issue of incoming materials and is equally concerned about
15 that potential for material coming in from offshore versus
16 material that has been generated here within the United
17 States.

18 CHAIRMAN MESERVE: Do they have a proposal on how
19 to deal with that? Bar all imports?

20 DR. COOL: I don't believe --

21 COMMISSIONER MCGAFFIGAN: It's hard to find a
22 purely American car manufacturer anymore.

23 In the old days Detroit might have liked that.

24 DR. COOL: I don't believe they have suggested a
25 particular proposal in any of the interactions they have

50

1 with us.

2 I expect, absent anything else, that they would
3 behave in a very similar manner. If the alarm goes off, I
4 sent it back. End of discussion.

5 CHAIRMAN MESERVE: Commissioner Merrifield?

6 COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman.
7 I want to focus first on pages 6 and 7 of the briefing
8 materials.

9 On page 6, in characterizing the opinion of the
10 metal scrap and cement industries, it states that they
11 oppose free release because of the potential for economic -
12 - and I would underscore health impacts, potential for
13 health impacts.

14 Similarly, on the presentation or the
15 characterization of the citizens' groups and individuals,
16 one of the items, the second one is that the risks are too
17 high.

18 What scientific evidence was provided by either
19 the metals and scrap industry or the citizens' groups to
20 back up those particular claims?

21 MR. HUFFERT: I'll go ahead and address that.
22 With regard to the letters that were received from the
23 metals industry, most of the focus of the letters were
24 related to economic issues and perception that people would
25 not buy the products, and that this could potentially cause

51

1 a shift or a loss of market. That was the focus of most of
2 their letter.

3 The health impacts were not done -- or the
4 discussion about the health impacts were not scientific,
5 with supporting analysis accompanying the letter, but rather
6 the concern was that -- with regard to the cement industry
7 letter, there was a concern that, in general, cement is used
8 in a variety of public uses, and this would increase
9 exposure.

10 That was a concern expressed there. With regard
11 to the metals industry, the concern that was expressed was a
12 kind of industry concern that if more scrap started coming
13 in which had the potential to set off alarms, which we have
14 discussed, which might lead to perhaps raising the level of
15 the alarm, which then might lead to some inadvertent
16 meltings of actual sealed sources.

17 So the concerns expressed, the health impact
18 concerns expressed in the metals and the cement industry
19 letters were of a general nature.

20 The concerns expressed in the letters from the
21 citizens groups and individuals were of varied nature.
22 There was one type of concern expressed by NRDC that, in
23 fact, what they wanted to see was better analysis of the
24 various potential health impacts, the ability to detect the
25 material, and with regard to uncertainties and regard to

52

1 effects from risks.

2 There was a variety of concerns and comments
3 expressed in the citizens groups letters that risks posed at
4 a millirem are unacceptable.

5 MR. COOL: If I could elaborate on just one thing,
6 the interactions that we had did not specifically go to, nor
7 did they end up going down a track of holding a discussion
8 on the fundamental question of the acceptability of
9 unacceptability of a particular dose, the linear dose
10 hypothesis or how you would make those transpositions.

11 They stayed focused on the issues associated with
12 these materials moving in and out, rather than going to that
13 underlying concern, although it was clearly recognized as
14 being there.

15 COMMISSIONER MERRIFIELD: Having read the
16 transcripts and seen some of the comments being made, there
17 are a variety of consumer products being raised of being of
18 concern -- frying pans and forks and all manner --
19 eyeglasses and all manner of things.

20 Are you saying that there wasn't -- that those
21 groups that raised concerns about released materials getting
22 into those products, that they didn't have -- they didn't
23 raise any kind of scientific explanation for why they felt
24 that even a very small amount of material getting in there
25 would have possible public health consequences?

53

1 DR. SCHROCK: In the discussions that we had, they
2 clearly expressed their views. In some cases, they
3 expressed some basis for their view in terms of with regard
4 to policy or an overall position.

5 As I said, we did not engage, nor for the most
6 part, was anything offered of a specific scientific argument

7 of the type that a set of health physicists or detectability
8 folks would attempt to make in that issue.

9 COMMISSIONER MERRIFIELD: In his opening question,
10 Commissioner McGaffigan talked a bit about some of the
11 comparative issues of exposure to radioactivity, either from
12 building materials and other forms. One could also make
13 comments about airplanes flights across country and things
14 of that nature.

15 Did the discussions -- and I didn't see to much of
16 it, but did the discussions in those meetings get to some of
17 those comparative exposure issues as well?

18 MR. HUFFERT: As Tony mentioned in his remarks, in
19 our opening discussions, as we opened to several different
20 sessions at the meetings, we would discuss the context of
21 the types of potential exposures that we were considering
22 here, the range of around a millirem.

23 We put slides up with regard to how this compared
24 to, as you mentioned, other actions you might take, the
25 background levels that are involved, and also other health

54

1 protective standards that we and other agencies have.

2 And then the conversation was opened up, and as I
3 say, the conversation and the letters went beyond that and
4 said, you know, there should -- this material should be
5 isolated from public use, and that the levels around a
6 millirem are -- especially, some of the comment letters came
7 in and said, well, if you extrapolate the exposure to a
8 millirem over the number of people who would use the
9 material or over the United States, with this material,
10 there would be potential risks associated with that.

11 COMMISSIONER MERRIFIELD: Okay, in some of the
12 materials I have seen, one of the examples that was used in
13 getting to the economic issue was relative to cars. We had
14 a little bit of a discussion about cars, and I'll proceed on
15 that a little further.

16 And the concern was that if materials were
17 released, found their way into the steel products, the steel
18 products found their way into cars, that the American
19 public, upon finding out that their Ford Motor product,
20 their Taurus, had radioactive materials incorporated within
21 it, even at every low levels, they would not want to buy
22 that car, and that would have a trigger effect on the steel
23 industry.

24 Given the fact that our European counterparts are
25 proceeding along a road to allow a release at a one-millirem

55

1 standard, and given the notation made earlier this morning
2 that we have international motor companies -- Ford Motor has

3 significant operations in Europe, as does General Motors,
4 and, of course, we all know Daimler-Chrysler is in that
5 regard as well -- are there similar reactions of the public
6 or to those companies that we are aware of in Europe
7 relative to the decision of the EU to move forward on this
8 basis?

9 Are there these dire economic consequences in
10 Europe that are being postulated by some of the testimony
11 that you receive relative to the economic issues?

12 MR. COOL: In talking with several of the
13 representatives from particularly like Germany and the UK,
14 and how they're going through this process, one of the
15 things that they said is that they are seeing now, from
16 steel and scrap industry type representatives, these issues
17 being raised, not necessarily the same words, but concerns
18 about materials entering their facilities, concerns tied to
19 sources and detections and how can I tell the difference,
20 concerns about the marketability of their product.

21 So, yes, I believe it is safe to say that these
22 issues are being raised. They do not have at this point,
23 the same sort of forum that we have been conducting, but
24 they are coming to light, particularly in the EU.

25 COMMISSIONER MERRIFIELD: I would say, just as a

56

1 final comment, I do want to thank the Staff for what I think
2 was a good presentation.

3 This has obviously been a difficult issue, and
4 given my review of the transcripts, these meetings have not
5 been the easiest for Staff, and I think they are to be
6 complimented for a lot of hard work relative to those
7 meetings.

8 As my final comment, I would agree with
9 Commissioner Dicus that certainly we need to take a review
10 of all of these issues of the comments we receive from the
11 public next week. Certainly the National Academy of Science
12 study will play a part, certainly, in my decision as to how
13 we should proceed and if we should proceed.

14 Thank you, Mr. Chairman.

15 CHAIRMAN MESERVE: Thank you very much. This has
16 been a very helpful discussion for all of us. It is
17 apparent to me that we will have -- we obviously have a
18 scheduled opportunity to ask more questions next week of the
19 stakeholders, and in the future there will be further
20 interactions on this subject.

21 As the questioning has --

22 COMMISSIONER MCGAFFIGAN: There is one question
23 I'd like to ask, if I could, of these folks, not the public.
24 It has to do with the definition of radioactive material.

25 I think it sort of bears on clearance, but there

1 seems to be different definitions of what is radioactive
2 material in different countries.

3 We have an export case currently before us where
4 there is some material that a licensee, I believe in the
5 south, wants to export to Canada, and part of their
6 application is that this is not radioactive material once it
7 gets to Canada, although it is here. It's byproduct
8 material here.

9 Do you have a sense -- I mean, we're looking at
10 clearance, but I think we have to look at clearance in
11 context. Do we have a sense, and could the Staff get it at
12 some point, of how, you know, different definitions -- we
13 have a legal framework that comes from the Atomic Energy
14 Act.

15 We've testified, we've talked about all these
16 different materials that are almost identical, low-level
17 waste, food wrap materials, exempt source material, exempt
18 NARM, NARM.

19 Other nations probably have equally messed up
20 codes, although we probably can top the list. We're good at
21 that.

22 But I think at some point it would be useful --
23 this is not really a question, but is more a statement -- I
24 think it would be useful for us to have a sense, country-
25 by-country, what gaps there are.

1 The thrust of my questioning is that there is lots
2 of this stuff around. Our stuff gets treated very, very
3 carefully, and there are big microscopes on it, but there
4 are lots of other things floating around that are not under
5 any regulatory framework whatsoever.

6 And it varies, country-by-country. So Customs and
7 Treasury must have real problems. But as I say, I just
8 thought of it as we were talking here, that there is a case
9 currently before the Commission that's being handled by
10 Staff. It got a little bit of press notice, which is why I
11 noted it, not because the Staff brought it to our attention.

12 But it was the -- you didn't need to. It was this
13 notion that this material, whatever export case it is, as
14 soon as it gets to Canada, is no longer radioactive.

15 And I know that's true elsewhere. I know that in
16 the transportation codes and whatever, there are
17 differences. If you could put in in some context at some
18 point, at least for this Commissioner.

19 CHAIRMAN MESERVE: Good. With that, I think that
20 we've come to an end. We'll have lots of interactions on
21 the subject, I'm sure, in the future. Thank you very much.

22 We're adjourned.

23 [Whereupon, at 10:50 a.m., the briefing was

24 concluded.]