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UNITED STATES NUCLEAR REGULATORY COMMISSION'S ADVISORY COMMITTEE ON NUCLEAR WASTE

December 14, 2004

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This transcript has not been reviewed, corrected and edited and it may contain inaccuracies.

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1	UNITED STATES OF AMERICA
2	NUCLEAR REGULATORY COMMISSION
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4	ADVISORY COMMITTEE ON NUCLEAR WASTE
5	(ACNW)
6	156 TH MEETING
7	+ + + +
8	TUESDAY,
9	DECEMBER 14, 2004
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11	ROCKVILLE, MARYLAND
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14	The Advisory Committee met at 8:30 a.m. in
15	Room T-2B3 of the Nuclear Regulatory Commission, Two
16	White Flint North, 11545 Rockville Pike, Dr. Michael
17	T. Ryan, Chairman, presiding.
. 18	COMMITTEE MEMBERS:
19	MICHAEL T. RYAN, Chairman
20	ALLEN G. CROFF, Vice Chairman
21	JAMES CLARKE, Consultant
22	WILLIAM J. HINZE, Consultant
23	RUTH F. WEINER, Member
24	
25	
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1	ACNW STAFF PRESENT:	
2	NEIL M. COLEMAN	
3	JOHN FLACK	
4	LATIF HAMDAN	
5	HOWARD J. LARSON	
6	MICHAEL LEE	
7	RICHARD K. MAJOR	
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3	Opening Remarks by ANCW Chairman	4
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5	Sealed Sources (Open) (AGC/RKM)	80
6	The Committee will hear from representatives	
7	of the NRC Staff, DOE, State of Maryland	
8	Department of Radiation Protection and other	
9	stakeholders on recent activities related to	
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1	P-R-O-C-E-E-D-I-N-G-S
2	(8:32 a.m.)
3	CHAIRMAN RYAN: The meeting will come to
4	order. This is the second day of the 156th meeting of
5	the Advisory Committee on Nuclear Waste. My name is
6	Michael Ryan, Chairman of the ACNW. The other members
7	of the committee present are Alan Croff, Vice Chair
8	and Ruth Weinberg. Also present are consultants Jim
9	Clarke and Bill Hinze, although Bill is getting oh,
10	that's right, they're getting their badging process
11	done this morning, so that's why they're not with us.
12	We'll continue on.
13	During today's meeting, the committee will
14	receive an update from the Director Office of State
15	and Tribal Programs on recent activity in his office,
16	Paul Lohaus is with us. Also one of his staff folks,
17	John Zabko, is with us as well. Good morning to you
18	both. We will also discuss draft prospectus documents
19	for proposed 2005 working group meetings and we'll
20	hear from representatives of the NRC staff, DOE and
21	the State of Maryland, Department of Radiation
22	Protection, and other stakeholders on the recent
23	activities related to the control and tracking of
24	sealed sources and we'll discuss proposed ACNW
25	reports.

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1 Is Neil Coleman, the Designated Federal 2 Official for today's session? Yes? You are, okay, 3 The meeting will be conducted in accordance great. 4 with the provisions of the Federal Advisory Committee 5 Act. We have received no written comments or requests 6 for time to make oral statements from members of the 7 public regarding today's sessions. Should anyone wish to address the committee, please make your wishes 8 9 known to one of the committee staff.

It is requested that speakers use one of the microphones, identify themselves and speak with sufficient clarity and volume so that they can readily be heard. We also ask that visitors sign in on the sign-in sheets that are behind the pillar just behind me. Without further ado, Paul, welcome and thanks for being with us this morning. Good to see you.

17 MR. LOHAUS: Thank you very much, Mike. 18 It's a pleasure to be with you. I had the opportunity 19 to meet with you before and we really appreciate the 20 opportunity provided. What we thought we'd do today is provide a broad overview on the Agreement State 21 22 Program, talk about some -- maybe highlight some of the recent program activities and one of the areas 23 that John Larkins and Howard had identified was our 24 25 oversight program for the Agreement States, so we

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thought we'd spend maybe some additional time and talk about our integrated materials performance evaluation program.

And I asked John Zabko to join me today. 4 John's a health physicist in my office and he's the 5 project manager that has overall responsibility for 6 7 the agency's program, so I thought it would be a good to meet John and an opportunity for you all 8 9 opportunity for John to meet you all. So he's going 10 to be sharing the presentation today.

What I prepared today is a short three-11 pager which I'll talk from and as we go through, if 12 13 there are any questions or any areas that you'd like to stop and talk about in more detail, any areas that 14 aren't on here that you'd like to talk about, please 15 stop me and make sure that we have an opportunity to 16 talk about this because I want to make sure that any 17 18 questions you have or any areas that you'd like to talk about, that we have an opportunity to cover that. 19

But if you'd turn to the first page, background information on the Agreement State Program, if you look at the first bullet, I'm going to sort of start with this historical perspective. But in 1959 the Atomic Energy Act was amended at state request and added a new section, Section 274 entitled "Cooperation

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with States" and that was a fairly significant action in that prior to that time all of the Atomic Energy Act materials were under Atomic Energy Act jurisdiction. What this did is it provided a role for the states.

6 Move onto the second item. What the Act 7 provides is that when a state is ready, the NRC will 8 discontinue and the state will assume regulatory 9 authority of the Commission over certain materials, 10 what I refer to as the byproduct source in small quantities of special nuclear material. And an 11 important aspect here is, this is not a delegation, 12 13 similar to what you may be familiar with, with respect to EPA programs. In this case NRC is actually giving 14 15 up authority. It's a relinquishment and the state is assuming authority under independent state laws. And 16 17 that's an important distinction that we have in the Agreement State Program that you won't see in other 18 federal/state programs. 19

The governor must request the agreement, must certify that the state has a program that's adequate to protect public health and safety. The Commission must make findings also that the program is adequate to protect public health and safety and also compatible with NRC's program. The relinquishment of

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1 authority is done through a formal agreement document. 2 That's where the term "Agreement State" comes from. 3 Under the Act and under the agreement, the Commission 4 does retain authority in specific areas; regulation of reactors, large special nuclear material users, the 5 6 import and export of material, high level waste 7 disposal, oversight of federal facilities. Authorizing distribution of materials to persons 8 9 exempt from licensing is another area that's reserved 10 to the Commission. So there are several areas that 11 NRC retains continuing jurisdiction, and one of these is the protection of common defense and security. 12 It's always Ι think. to

13 important, recognize that -- moving on to eighth item, that the 14 15 states also regulate in areas that are broader than 16 the authority assumed under the agreement. They have 17 responsibility for X-rays, naturally occurring 18 materials and have what they refer to as comprehensive 19 radiation control program. In other words, they deal with Atomic Energy Act materials, X-rays, naturally 20 occurring materials, lasers, non-ionizing radiation, 21 22 across the board, fairly broad programs.

Today there are 33 Agreement States. They regulate about 17,000 license. NRC regulates about 5,000. There are two states currently active in

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1	negotiating agreements. Minnesota, we expect the
2	Minnesota agreement to be effective in the September
3	timeframe of this year and Pennsylvania is also active
4	and their current schedule has them becoming an
5	Agreement State in the late 2007 timeframe.
6	CHAIRMAN RYAN: September 2004, does that
7	mean they are an Agreement State now or they're
8	MR. LOHAUS: They will be. The current
9	schedule, Mike, is the agreement would be effective in
10	September 2004. We have an application from the
11	governor that's under review and our next step would
12	be to publish that for public review and comment.
13	CHAIRMAN RYAN: We're passed 2004,
14	September though.
15	MR. LOHAUS: Oh, thank you, yes.
16	CHAIRMAN RYAN: 2005?
17	MR. LOHAUS: 2005.
18	CHAIRMAN RYAN: Okay, great.
19	MR. LOHAUS: Thank you.
20	CHAIRMAN RYAN: All right, I didn't want
21	to rush into it if we weren't ready.
22	MR. LOHAUS: Thanks, yes.
23	CHAIRMAN RYAN: And Pennsylvania is a
24	limited Agreement State now for the purpose of
25	regulating low level waste if I understand.
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1	MR. LOHAUS: They explored that at one
2	time.
з	CHAIRMAN RYAN: I'm sorry, could you
4	explain Pennsylvania's status a little bit for us?
5	MR. LOHAUS: Sure, going back, maybe
6	this probably went back maybe seven, eight years,
7	Mike, they had an interest. They did a Part 61 Rule.
8	They had an application to become what's called a
9	limited Agreement State which would be they would have
10	taken on authority for only the low level waste
11	disposal facility licensing. They chose not to pursue
12	that and subsequently chose to go for a full agreement
13	and they did give us a draft application about two
14	years ago. We reviewed the draft application, gave
15	them comments and they're presently working on
16	preparing a final application, getting people in
17	place, getting the regulations finished, getting the
18	program description done and looking to submit an
19	application in the near future. We don't have a date
20	from them yet, but they are working getting their
21	people in place. That's one of the key items that
22	will trigger them submitting an application.
23	CHAIRMAN RYAN: Just for my own
24	information, does a state have to have rules and
25	legislation in place and completed prior to getting
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the agreement status or can that be a contingent
issue?
MR. LOHAUS: There is no contingency
ability. You need to have a set of legislation and
statutes in place that would enable the program, have
regulations in place that are compatible with NRC's
basically, the program's got to be a complete program
including all of the necessary procedures, licensing,
inspection procedures, statutes, regulations.
CHAIRMAN RYAN: Yes, thank you.
MR. LOHAUS: Several other states
moving on to the 11th item there, several other states
have interest in achieving agreement status;
Connecticut, Michigan, and recently New Jersey as
well. If you look historically, I think this is an
important aspect, looking at the program over the past
10 years. There's been some rather significant
changes that have taken place what I would almost term
a re-engineering, if you will. There's two new policy
statements that provide the underpinnings for the
program.
There is the Statement of Principles and
Policy for the Agreement State Program. There's also
a new policy statement on adequacy and compatibility
of Agreement State programs. One of the areas where
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we had experienced a fair amount of difficulty in the past from a scheduling standpoint was processing of new agreements. And we took a look at the past experience and reflected that into a new procedure which is the state agreements, SA-700 State Agreements Procedure processing an agreement and basically what that does, it provides a road map for a state.

8 And significantly, what we did is we -- if 9 you look historically, there were multiple iterations 10 that we would through with a state. We'd look at a preliminary draft application. We'd look at a draft 11 12 application, sometimes we'd look at a third iteration. 13 We'd look at a final application and what we did is we streamlined the process to have a two-step review 14 process. We'd review a draft application, provide a 15 16 set of comments to the state on that draft application 17 and then get a final application from the governor, so there's a two-step review process and we do a detailed 18 19 review on the final application.

And in the last several agreements that 20 we've done that have really helped, that has expedited 21 the process, it's reduced the level of resources that 22 the states had to devote to preparing their program 23 description. It's also reduced the level of resources 24 25 agency devoted to processing that the of new

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1	agreements. And coming back to your question, Mike,
2	if you're interested, that procedure basically ties
3	everything together, has a set of criteria that we use
4	for judging the adequacy of each of the program
5	elements, both the statutes, the regulations, all of
6	the various elements in the program, and also provides
7	good guidance to the state in terms of what they need
8	to include in their application to be in a position to
9	meet the criteria that are there. We found that
10	that's really what helped us a lot.
11	CHAIRMAN RYAN: Has that kind of then
12	filtered into your follow-up in checking Agreement
13	State programs and a lot of oversight and so forth?
14	MR. LOHAUS: Yes, it does. As a matter of
15	fact, that's a great lead-in. If you'd move onto the
16	second page, the first bullet at the top, the sort
17	of in parallel, we also developed a new review
18	program, the Integrated Materials Performance
19	Evaluation Program and both sort of fit each other.
20	If you look at what we do in processing a new
21	agreement, when you look at what we do in terms of the
22	review program for existing Agreement States, there's
23	good parallel and good consistency between the two.
24	In other words, if you were to take a new
25	Agreement State and do a review against the impact
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1 program, that program should come out fully 2 satisfactory in meeting all the review criteria in the 3 Management Directive. So there's good parallel between the two and John's going to come back and talk 4 5 further about the IMPEP program.

CHAIRMAN RYAN: Great.

7 MR. LOHAUS: One of the other areas of 8 change and I think this is a very positive area, has 9 been increased opportunity and involvement of the 10 Agreement States in NRC activities. That procedure 11 that sets that out is Management Directive 6.3. There's a number of other staff procedures that tier 12 off of that Management Directive but what it does, it 13 14 provides for the establishment of working groups. 15 You've probably seen or had presentations by some of 16 the different working groups, but what this does, it 17 provides an opportunity for state staff and NRC staff to work together, take the expertise that we have 18 within the staff and put them together and what we 19 20 find is, we're getting better products, there's better acceptance on the part of the states for those 21 products in terms of their having the opportunity to 22 23 participate in developing the products and it also 24 provides for a sharing of the resources that are 25 needed to develop those products and we interact very

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closely with the Organization of Agreement States in the Conference of State Radiation Control Program Directors in the establishment and the use of the working groups.

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5 If you look at any one point in time, 6 there may be anywhere up to 20 or so working groups 7 that are in place. For example, a good example is the working group that's working on the trading and 8 9 experience criteria for Part 35. There's -- it's a 10 good mechanism that we have. One of the other things I thought we'd highlight is, if you look over the 11 12 program and look where we are today, you're going to 13 see increased Agreement State involvement in the administration of the program. 14

15 an Organization of There's Agreement 16 States, it used to be sort of an informal coalition. 17 They're now an incorporated organization. They have a board of directors, elected leadership. 18 They serve as a representative organization for the Agreement 19 20 States collectively. State staff participate on our review teams for the Integrated Materials Performance 21 22 Evaluation Program, so we have peer reviews and as 23 John is going to talk, those reviews are done 24 uniformly, both for our regional programs and for the 25 state programs. So you have the state staff

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participating with NRC staff applying a common set of criteria in reviewing both what NRC is doing in terms of its materials program implementation and what the states are doing in their Agreement State programs.

I mentioned earlier the participation on 5 I think this has been very effective 6 working groups. 7 and since 1997, the states have taken the lead on the annual Agreement States Meeting. Prior to that time, 8 9 it was really an NRC meeting. Today, if you look at the meeting, it's truly a meeting of the Agreement 10 11 NRC continues to actively participate, but States. 12 it's truly a meeting of the states that they run, they host the meeting, they work the agenda with us and 13 14 really take the lead in setting that meeting up and 15 carrying that meeting out.

The last item I've highlighted here and 16 this has been an area of concern and I think continues 17 18 to be an area of concern for the states but it was a 19 tough decision the Commission made but the right decision, is that we stopped funding of Agreement 20 In the past, what we did is we 21 State training. 22 provided both tuition cost and travel and per diem cost reimbursement to states for attendance of NRC 23 training courses. Given fee equity concerns, you have 24 25 NRC licensees that were covering the costs for that,

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the Commission chose to change that and place responsibility on the states, which I think is rightfully a responsibility they have, to train and qualify their staff. They still actively participate in NRC's training courses, but they do pay tuition and they do pay their travel and per diem for attendance at that training. So it's a responsibility that really the states have to train their staff comparable to the responsibility that NRC has to train its staff. Move on to the 13th item, I wanted to talk

11 a little bit about the National Materials Program. And maybe the first point to emphasize is in many 12 13 cases we talk about the National Materials Program as 14 being a future program or a future state of the program and to me, the National Materials Program is 15 16 a program that's in existence today. It's basically 17 is represented by NRC and the collective what It's not a static program. 18 Agreement State programs. It's an evolving program. 19 You're going to see the program continue to evolve. 20

For example, Agreement State participation in working groups and participation in helping develop regulations and guidance is an evolution in the program. As the number of states increase, the role and responsibility for the states in helping maintain

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1 the infrastructure of regs and guidance is going to 2 continue to increase commensurately. So what we have 3 today is the collective program and that program will 4 continue to evolve as we go forward.

5 I've highlighted a recent SECY paper 04-6 215. We recently completed a series of pilot projects 7 in looking at National Materials Program issues, the 8 ability of states to take on and address guidance 9 development responsibilities, further demonstration of 10 NRC and the states to work together in working groups to produce products that can be used both by NRC and 11 the states and that paper provides a final report to 12 the Commission on the results of the pilot projects. 13 14 So if you have interest, you may want to take a look 15 at that paper.

16 CHAIRMAN RYAN: I think we would really be 17 interested in getting a copy or several copies 18 electronically, if we can, folks. Thank you. That 19 would be great.

20 MR. LOHAUS: Before I move onto the 21 Integrated Materials Performance Evaluation Program 22 and have John pick up, let me maybe stop here and see 23 if there's any questions or any areas that I may not 24 have covered. I mean, I know I've going through this 25 fairly quickly but I thought what I'd do is sort of

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give you a broad overview of where the program came from, sort of where we are today, some of the current issues the working groups, the National Materials Program, but if there's anything in particular that you'd like us to talk about further.

6 CHAIRMAN RYAN: Yeah, а couple of 7 thoughts, Paul, that you've stimulated; you haven't 8 mentioned the CRCPD, the Conference of Radiation 9 Control Program Directors. Do they still have an 10 active role and have suggested state regulations and so forth? 11

12 Yes, they do. Very good MR. LOHAUS: 13 question. If you look to the states, there are really 14 two major state organizations; one I mentioned the 15 Organization of Agreement States. The other is the Conference of Radiation Control Program Directors. 16 17 The Conference includes representation from all 50 18 states. All 50 state radiation control program 19 directors are represented in that organization. One 20 of their products and it's a very useful product that 21 Mike mentioned, are the suggested state regulations 22 and these regulations are developed to address the 23 needs of the entire program. In other words, they don't just address needs that relate to the Atomic 24 25 Energy Act materials, but they also address needs

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relating to X-ray regulation, regulation accelerators, 1 2 and other areas, lasers, for example, they have a 3 suggested state regulation that deals with lasers and what the NRC staff does is work very closely with the 5 various suggested state regulations groups. There's 6 probably about maybe 15 or so of the groups assigned 7 responsibility for particular areas and we work very 8 closely with them.

9 For example, they have a group suggested 10 state regulation dealing with Part 35 and they will work with the NRC staff to develop a comparable to 11 Part 35 that the states could then use as a model in 12 developing compatible or comparable state regulations. 13 14 They also have a Part 61, for example, equivalent rule that they've developed and that provides a model for 15 the states to use for developing a waste disposal 16 17 licensing rule. They have a regulations dealing with transportation, for example. 18

19 So it's a good active organization. They have an annual meeting each year in the spring 20 21 They have good support and participation timeframe. 22 on the part of the federal agencies. It's a very active organization. 23

24 CHAIRMAN RYAN: This may be a question 25 that you don't have an answer to but as you talk about

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1	Agreement States dealing with AEA, let's just stick
2	with materials for the moment, and perhaps non-AEA
3	materials like let's take NARM, Cobalt-60 or something
4	else produced by an accelerator, do you see that
5	coming together? There have been a couple of
6	initiatives that bring some non-AEA material under the
7	AEA which would then put it under NRC as an Agreement
8	State controls and I ask the question because when you
9	talk to the state folks, I quote Mike Mobley often who
10	said, "Uranium is uranium is uranium". I don't care
11	where it started, I mean, he regulates the radiation
12	risk. What's your thought on that? Where is that
13	going? What's the direction of that effort?
14	MR. LOHAUS: My sense is the direction is
15	that there will be, you know, in the future, a more
16	of a comprehensive aspect. If you look at the
17	Agreement States, they presently regulate the
18	naturally occurring and accelerator produced materials
19	comparably to how they regulate the Atomic Energy Act
20	materials.
21	CHAIRMAN RYAN: Same people, same regs,
22	same
23	MR. LOHAUS: Same regs, same people, same
24	process, same inspections, and many of the non-
25	Agreement States have very active programs where they
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1 register, license and control those materials in a 2 very comparable way to how an Agreement State or NRC 3 regulates naturally occurring materials. There are 4 legislative proposals that have been considered and I 5 believe are still active that would provide for the 6 assumption of authority over discrete naturally 7 occurring and accelerated produced materials by the 8 Nuclear Regulatory Commission and again, this is an 9 item before Congress but I think there is support from 10 the states for moving forward in that area and we'll 11 in the have to see how that comes out next 12 congressional but is legislative session, there initiatives to provide authority to NRC for discrete 13 NORM and discrete NORM materials. 14

15 CHAIRMAN RYAN: It's interesting when you look at AEA material licensing in states, it's very 16 17 much a uniform sort of activity for all the reasons 18 you've mentioned, which, you know, are all very good 19 and well-planned reasons. If you look at say T-NORM, 20 it's all over the map from none to a lot. So and you 21 know, when you kind of think about risk informing all of that, sometimes T-NORM is more important, perhaps, 22 than some AEA materials in terms of their relative 23 24 interest from a regulatory perspective, so it's 25 interesting to see that kind of shift continuing

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1 toward one voice for a risk informed view of 2 radioactive material. 3 MR. LOHAUS: Yes, and you know, mentioning 4 the conference earlier, one of the accomplishments that they did recently was, they produced a regulation 5 that's Part N. They use letters for their rules, but 6 7 it was a regulation that was intended to address 8 naturally occurring materials. So they've taken the 9 lead to try and provide a model regulation that the states could use in that area as well. 10 CHAIRMAN RYAN: Sure. 11 MR. LOHAUS: So it's a good initiative to 12 further that as well. 13 14 CHAIRMAN RYAN: I know, I serve on that 15 committee, so I understand it well. MR. LOHAUS: Yes. 16 CHAIRMAN RYAN: Yeah, that's interesting. 17 18 Well, let me stop and see if there are other 19 Yeah, Allen, Allen Croft? questions. MR. CROFF: You mentioned a regional 20 program and I wasn't clear what that was or how it fit 21 22 in. CHAIRMAN RYAN: The NRC Regional Materials 23 Programs that we carry out, when we do our IMPEP 24 25 reviews, the IMPEP program or Integrated Materials NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

1 Performance Evaluation Program, our review program, we apply that program to the materials programs that are 2 carried out in the regions and the programs that are 3 4 carried out within the Agreement States. So what we have is a process where the determinations that the 5 6 programs, whether it be an NRC program or an Agreement State program, are being carried out in accordance 7 with the criteria that we have set out in IMPEP. So 8 if you look at our review program, we'll be going out 9 to a regional office. We look at their implementation 10 of NRC's materials program, how they're doing 11 licensing, how they're doing inspection, the staffing, 12 the training of that staff in a basically identical 13 way that we would look at an Agreement State program 14 and review that program. It's basically to provide 15 commonality in the criteria that are applied in 16 looking at the performance of the programs and in 17 18 judging the performance of the programs. 19 So we have the same process that's being applied to NRC's materials programs as we apply to the 20 21 Agreement States. 22 MR. CROFF: Okay, so when you say "regional program", it's NRC exercising its regulatory 23 authority in non-Agreement States. 24 That's correct, yes, that's 25 MR. LOHAUS:

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1	correct.
2	MR. CROFF: Okay, that's what the name
3	sort of threw me.
4	CHAIRMAN RYAN: I think a friendly
5	amendment to that is also over its authority that an
6	Agreement State is not allowed to have in an Agreement
7	State greater than 350 grams of SNM and so forth.
8	MR. CROFF: Okay, I understand.
9	MR. LOHAUS: That's correct, yes.
10	MR. CROFF: Okay.
11	MR. LOHAUS: That's correct.
12	MR. CROFF: And you mentioned also a
13	policy statement on adequacy and compatibility. I
14	wasn't sure I guess what's the compatibility issue,
15	if you will? Is there a requirement that agreements
16	state regulations be compatible and sort of what does
17	compatibility mean?
18	MR. LOHAUS: That's an excellent question
19	and it's been a question of discussion from the
20	beginnings of the program and continues to be a
21	question of discussion but if you look statutorily,
22	NRC, the Commission is required to make two findings
23	for a state program initially. One is that they're
24	adequate to protect public health and safety and the
25	second is that the program is compatible with NRC's
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program. And basically the compatibility component is 1 a consistency. In other words, the program should be 2 consistent with NRC's program within certain bounds so 3 that you don't disrupt interstate commerce, you don't 4 create inequities between an Agreement State and the 5 licensee within Agreement State NRC an 6 or а 7 jurisdiction and a licensee within NRC's jurisdiction should be faced with the same level playing field, if 8 And obviously that's you will, and requirements. 9 the state's interest to have 10 balanced with flexibility, to address local preferences, to address 11 individual state legislative desires in terms of how 12 the program should be run within the state and that 13 level 14 policy statement provides basic ground definitions of what we mean by adequacy, what we mean 15 by compatibility and then sets the limits or bounds in 16 which the states can have flexibility and then we've 17 established a set of implementing procedures that 18 carry that forward, but the comparability component is 19 really the component of having, let's say uniformity 20 in the radiation protection standards across the 21 nation so you don't have one dose standard in one 22 state and another dose standard and --23 So the states generally MR. CROFF: 24 approach their regulation or legislation and whatever 25

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1 in essentially the same way from state to state? You 2 know, if I went from Agreement State 1 to Agreement 3 State 2, would the regulations and whatever look 4 fairly similar or do they -- are they sort of all over 5 the map and they approach it in very different ways? 6 MR. LOHAUS: It's the former, but I'm 7 going to put the but in there, but, there is -- you 8 will find variation and that variation and one of the 9 responsibilities we have is to keep that variation 10 within the range of the criteria and the range of our 11 procedures. 12 And certain things are pretty easy. For example, administrative procedures, the state may have 13 certain process steps that it would go through to 14 15 receive, review and issue a license. We leave a lot of flexibility in that area to meet state preference. 16 However, for dose standards, for example, public dose 17 standards, occupational dose standards, concentrations 18 19 of material that would be acceptable for release under the Part 20 concentration limits, those have to be 20 uniform and we work with the states and we review each 21 22 of their regulations and each of their procedures to 23 make sure there's uniformity in the dose standards. So when you look at the state rules and 24 25 the state statutes in that area, you're going to see

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very -- they're all going to be aligned along the NRC 1 standards, if you will; whereas if you looked at their 2 licensing procedures, you're going 3 to see some 4 variation, a lot of variation from state to state. 5 And one of the responsibilities we have and as a 6 matter of fact, John, prior to his assuming IMPEP 7 responsibilities, had lead responsibility for us in this area. We review each state rule change in draft 8 9 and apply our criteria to make sure that that rule is 10 within the bounds and then after the rule is promulgated, we also review the final rule to make 11 12 sure it's within bounds and then during our integrated 13 materials performance evaluation program reviews, that's one of the areas that's specifically reviewed. 14 15 We look at regulations and the other

program elements required for compatibility to make 16 17 sure that the program is within the bounds that it 18 should be. So we look at this initially for a new 19 Agreement State and then we look at this on a continual basis after a state becomes an Agreement 20 21 State. And you will find -- as I noted though, you will find some areas where the states are more 22 For example, one area is the dose 23 restrictive. standards for -- that are set out in the license 24 25 termination rule. In this case, that's more of a

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constraint, if you will, than an actual standard in 1 that the state does have flexibility in that case to 2 set a more stringent standard and you will find some 3 states that have set a decommissioning dose limit 4 that's lower than the 25 millirem limit that NRC has 5 in that case, that's within the bounds of 6 and 7 acceptability, if you will. But if you look for the occupational dose 8 limit, you'll find uniformity across the nation in 9 10 that area. MR. CROFF: Okay, thanks. 11 MR. LOHAUS: It's a great question. Ι 12 mean, the areas of discussion and the pull and tug 13 that we have with the states in this area, it's an 14 area of tension and it's the flexibility versus the 15 uniformity question. 16 CHAIRMAN RYAN: Paul, you could probably 17 18 talk for an hour or more on just that one topic --MR. LOHAUS: Yes. 19 CHAIRMAN RYAN: -- but there is a lot of -20 - you know, having been a practitioner in South 21 Carolina, there's a lot of attention paid by states to 22 the regulations of the NRC and how they evolved. For 23 example, you know, as the chairman of the TARCC 24 25 Council, the Advisory Council in South Carolina, say, NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1 "Well, these are compatibility changes that the NRC 2 has made to regulations and here they are and, you 3 know, we're going to implement them through a rule 4 change and all of that", so it's very much a dynamic 5 process over the years to maintain that compatibility 6 and that's I think, one of the strengths of the 7 program. 8 MR. LOHAUS: Yes, yes. CHAIRMAN RYAN: If you're in one Agreement 9 10 State or another, you have a pretty clear picture with 11 the exception of some of those finer details, perhaps, 12 of where you stand and what your requirements are. 13 MR. LOHAUS: Yes, yes. CHAIRMAN RYAN: That's hard work to keep 14 15 that up. 16 MR. LOHAUS: Very much so, yes. 17 CHAIRMAN RYAN: Any other questions or 18 comments? Yes, for Paul? 19 DR. WEINBERG: For Paul. Something you just said triggered a question. When a state sets a 20 standard that is within but more restrictive than the 21 22 federal, do you ask them for any kind of justification 23 or can they just do that? MR. LOHAUS: We -- in those cases where 24 they set more stringent standards, we do like to 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

1 understand the basis for that and if you look at the 2 policy statement and the criteria, there is a limiting 3 In other words, they cannot -- they factor there. 4 cannot set a standard that's not based on public 5 health and safety, environmental protection 6 considerations and they cannot set a standard that 7 would be so restrictive that it would preclude a 8 practice that's in the national interest. In other 9 words, if they set a standard that was so low that you 10 couldn't license let's say a particular kind of activity within that state, that would put that out of 11 bounds under the policy and under our procedures. 12 And there is a limiting criteria, if you 13 will, that's there but yes, in those cases where the 14

14 will, that's there but yes, in those cases where the 15 state has a different requirement or procedures, we 16 ask the state to identify that and to provide the 17 rationale or reason why they chose to do that so we 18 have some basis for understanding for that.

19DR. WEINBERG: Do you look at -- is there20in every state a particular state agency that does all21the Agreement State, all of the oversight -- sort of22oversight that an Agreement State does or is this23spread out among state agencies?

24 MR. LOHAUS: a great question because 25 that's another area of pull within the states,

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1 particularly today. To go back to the conference, the conference has a resolution that they've passed where 2 they would like to see a central state radiation 3 4 control program or agency, a single agency that's 5 identified. And if you look at the states, the 6 majority of the states are operated by a single That's sort of the term 7 radiation control program. that's use. 8

In many cases it's within the State Health 9 10 In some cases it may be within the state Department. 11 environmental group. In some cases it may be a 12 separate organization. For example, Arizona has an Arizona atomic energy organization that reports 13 directly to the governor, if you will. Some programs 14 15 are operated by multiple agencies. And NRC's position relative to organization, we do not dictate how a 16 17 state should organize. We leave flexibility. What we want to make sure though, is however the program is 18 19 organized, that it's adequate, that there's clear lines of communication among the various organizations 20 the program is effective in terms of its 21 and 22 implementation and a couple of examples.

23 One is within the State of Texas, you have 24 two organizations. One organization has 25 responsibility for licensing a low level waste

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disposal facility and handling the decommissioning type actions. The other organization has the responsibility for all the rest of the program. And you will find programs such as that.

5 One program I'll highlight is the New York 6 That program is actually, since its State program. 7 inception, has been carried out initially by three 8 organizations and now by three separate -- excuse me, 9 four separate state organizations, but they interact 10 and coordinate well, and when we do our program. 11 reviews, we review each of those programs and we pull 12 together an integrated bottom line, if you will, for the entire state radiation control program. 13 And the states are wrestling with this today because there are 14 15 efficiency areas and some legislative initiatives what 16 are looking at improving state government performance 17 and in some cases they're taking the programs and moving the responsibilities out and putting all 18 19 licensing activities within the State Department of 20 Health in one group, all inspection activities within another as opposed to having a single radiation 21 control program. 22

And that's created some difficulties for the states in terms of maintaining expertise and training and understanding and transfer of knowledge.

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1 Louisiana is a good example. They went through that process, divided the program up and then recently they 2 brought the program back together as a central program 3 4 because of the benefits that they see for having that central program and the expertise that's needed in the 5 radiation safety area that they lost that and they're 6 7 now back as a central program. What goes around, comes CHAIRMAN RYAN: 8 9 around. MR. LOHAUS: Yes. 10 CHAIRMAN RYAN: Okay, any other questions 11 Thanks for that introduction, Paul. It's for Paul? 12 a good tutorial on a very dynamic program. 13 MR. LOHAUS: John? 14 CHAIRMAN RYAN: John, take it away. 15 Thank you very much for the MR. ZABKO: 16 time to speak to you and I'd like to know about the 17 It's kind of sagging. Can you hear me 18 microphone. It might fall, but I'll play with it. 19 now? As Paul started, I will continue to give 20 you an overview of the IMPEP program instead of going 21 22 into specific details but if there are any questions along the line, along the way, please stop me and ask 23 or you can ask after we're done or you can always 24 contact me in the Office of State and Tribal Programs, 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	if you have an in-depth question that you'd like to
2	discuss. As Paul has said, we do review the state
3	programs and the regional programs and our authority
4	comes from Section 274(j) of the Atomic Energy Act
5	that allows us to go out and oversee the programs in
6	the Agreement States. It is a common process across
7	the United States. We do apply the same criteria to
8	regional NRC regional organizations as well as the
9	Agreement States. The same set of criteria with the
10	exception of common and non-common performance
11	indicators, which I'll get into later. Obviously, if
12	a state does not have a certain program element, we're
13	not going to inspect or look at that program element
14	in the state and the same thing in the regions.
15	Since the regions operate under the NRC
16	jurisdiction, they have the same regulations, so we
17	wouldn't be looking at their comparability aspect of
18	their program to the regulations. We would take that
19	away from that part of the review, and I'll cover that
20	a little bit farther down. We normally conduct
21	reviews every four years depending on the program, how
22	it's functioning. If we do see problems in the
23	program or potential problems, if that comes out in an

IMPEP review, we may schedule a shortened period asthe next impact report or impact inspection. That is

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a decision made by the Management Review Board here at the NRC based on the results from the IMPEP and it's not a decision that's come to lightly. There's a lot of debate and there's a lot of information gathered to make that decision about cycling short a review or going the full four years for good performance for a program.

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The reviews are scaled to size for the 8 9 different Agreement States and for the regional 10 offices. California and New York, New York, as Paul mentioned, very big programs we send larger numbers of 11 people. Sometimes seven or eight people will go to a 12 large state. Usually it's around four, though, for a 13 14 small state with just your basic indicators that we're 15 looking at. And that normally -- a team normally 16 consists of a team leader, which is a senior NRC 17 person, either from the regions or from the Office of State and Tribal Programs or from time to time an NMSS 18 19 person will go.

There are three to four other people that 20 21 go along with a team; one being an Agreement State 22 person. And the Agreement State person does provide 23 We like to include the a very great service to us. 24 Agreement States in this process, so it truly is a 25 nationwide, consistent and it's not just the NRC

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1 dictating but it's a national program for the review 2 They also can take -these programs. the of Agreement State people can take the knowledge they 3 4 learned from looking at some of these other programs in the United States, how they do things or maybe some 5 of the things are problems, where they can take that 6 back to their state so that they can enhance their 7 8 program and we do see the IMPEP program not only as 9 being an evaluation program but a learning process for the United States and for all the Agreement States and 10 for the National Materials Program and I've already 11 touched on the makeup of the teams. 12

performance indicators, Ι Common as 13 indicated before, are things that all Agreement State 14 15 programs or the regions will share such as staffing, status and materials of inspection program, technical 16 quality of inspections, technical quality of licensing 17 actions and the response to incidents and allegations, 18 19 these are things that all programs will have. So we will get them in each review. I'll touch on a few 20 things of what make up each one of those but there are 21 -- each one consists of a lot of items but I'm just 22 going to touch on a few to make sure we understand 23 what each one is. 24

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Technical staffing and training means does

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the program have enough people to do their job based on their licensee load and are they trained sufficiently. We don't really prescribe a training plan for the Agreement States. We do give them a model and we do have certain guidelines, but it's to insure that people who are doing the inspections have an adequate background to do the inspections that they're doing.

9 Status of Materials Inspection Program, 10 different states have less obviously, more or They need to have more or less inspections 11 licensees. 12 taking place at different frequencies and are they 13 meeting those frequencies and are they compatible to the NRC's inspection frequencies and are they being 14 15 done at a routine fashion and are the reports being generated on a routine fashion and is the management 16 17 involved in that process, is the kind of things we 18 look at.

The technical quality of inspections, are they inspecting what they -- what we think they should be inspecting as a model program. Are they inspecting medical licensees for items that we would normally see them looking for in a medical licensee. Are they inspecting eradiators for the things we would be expecting them to see there as well, so we have a

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1 standard across the United States. The technical 2 quality of licensing actions refers to things come in 3 when a licensee requests a license. Are they applying 4 the correct license conditions, are they applying the 5 correct limits. Are they applying the correct financial assurance, things of that nature. 6 7 And respond to incident and allegations, if there are incidents in the state is the radiation 8 9 program responding to those incidents? Are they 10 giving health physics support as they should and are 11 they following up on that and are they also reporting to the NMED data base for information for the whole 12 country to use on trends analysis. 13 14 CHAIRMAN RYAN: Could you talk a little 15 more about that data base, please? 16 MR. ZABKO: It was set up to make sure 17 that as events happen in the United States they can be 18 reported to a central location and they can be grouped 19 and tracked and follow-up actions can be planned from that. Each Agreement State does report to NMED based 20 on a certain criteria what event would trigger the 21 22 reporting level and during the IMPEP review, we do 23 make sure that they are using the NMED process. And here at the NRC we do have certain 24 25 groups in NMSS that are -- that do track the system. NEAL R. GROSS

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1 MR. LOHAUS: This is an area that we put a lot of increased focus on with the states because of 2 3 not only, you know, the significance of the events but also the learning that comes from those events. 4 In 5 other words, there may be an event that may take place in one state. There may be a similar event in another 6 7 state and when you look at that, there may be a 8 generic safety issue or a generic issue with respect 9 particular event, procedure, to that or that particular equipment, for example So we've put a lot 10 of increased focus on having the states report event 11 information to a common data base. 12 And if you look at this, how it's tiered, 13 14 the requirements for reporting events, those are matters of comparability we talked about earlier and 15 those, the states have to require that their licensees 16 17 provide the same reports, immediate, 24-hour, whatever the particular requirement is in terms of lost 18 19 material, overexposures, medical misadministration and then there's a comparability requirement on the states 20

21 that that information that they receive is reported to 22 NRC and there's a contractor, INEEL, that maintains 23 the data base for the NRC but that provides a 24 collective set of event data for the nation.

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CHAIRMAN RYAN: Is the examination of that

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1	data the trends and tracking part of something that
2	the Agreement State staff does here or do they report
3	to you or
4	MR. LOHAUS: It's
5	CHAIRMAN RYAN: or both?
6	MR. LOHAUS: both. States should be
7	doing the event analysis and this is one of the areas
8	we look at in terms of looking for root causes,
9	looking for root issues. NRC staff reviews the data
10	nationally and also INEEO does review that data and
1İ	does provide a quarterly report. They look at the
12	results of the trending and things of that nature.
13	CHAIRMAN RYAN: Would it be possible for
14	us to get a couple of quarters of that report, just
15	take a look?
16	MR. LOHAUS: Yeah, and what I'll need to
17	do is as John mentioned, the owner of this, if you
18	will, within the staff is within the Office of Nuclear
19	Material Safety and Safeguards Organization. It's a
20	work
21	CHAIRMAN RYAN: No rush, but I think that
22	would be helpful. I think about over the years of
23	course, we know about radiography sources that are and
24	there are issues of being lost or lost down a hole and
25	those kind of things and sometimes, you know, cables
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sticking and you get equipment information and all that sort of stuff. It will be interesting to see what some of the highlights of that event over time to identify issues that you wouldn't maybe see otherwise.

5 DR. HINZE: Do you ever see events 6 happening by omission rather than by commission? In 7 other words, do you see an Agreement State that is not 8 reporting the same kinds of things that you're seeing 9 in the other states and there may be then an omission 10 in the reporting of the events or incidents?

11 MR. LOHAUS: I'm just thinking. I'm not 12 certain I've seen that. There certainly has been an increased focus that we've put on this area that the 13 Commission has put on this area, particularly in terms 14 15 of looking at the control of material, looking at 16 incidents that result in overexposure and I mean, if 17 you look historically, industrial radiography in many 18 cases not following basic good health physics 19 procedure, having your survey meter turned on and 20 using it, and things of that nature, you know, not picking up the end of a guide table, so there has been 21 22 learning there but I'm not certain I could identify an 23 area that's related to quote "omission" if you will from that. 24

There generally has been, from my

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1 experience, more of situations not following 2 established rules or established procedures or 3 process, if you will.

4 CHAIRMAN RYAN: I might add, Bill, too for your benefit, being -- having been a licensee and an 5 RSO, in an Agreement State, very often the Agreement 6 7 State inspection of the state program involves visits 8 to licensees and in fact, very detailed review of the 9 states' oversight of a state licensee and I would 10 think that, you know, that could be focused on areas 11 of concern or issues and that probably it's still, you 12 know, what kind of licensee do we want to look at this We've looked at this the last time or, you 13 time? know, that kind of planning goes into it, but that's 14 15 probably a check from the NRC's oversight that there's actually, they kind of drill down into what the 16 17 state's looking at, at the licensees and they 18 interview the licensees, too. "How is the state 19 doing"?

20 So I think maybe you could talk about that 21 component.

22 MR. LOHAUS: Let me -- yeah, as a matter 23 of fact, you sort of triggered because I came at your 24 question more from the standpoint of looking at the 25 licensee, but from the standpoint of our oversight

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1 program that's what I'm looking at. I apologize, but 2 the answer is, yes. There -- I mean, if you look at 3 the results of our reviews, this is an area we've 4 focused on, you will find when you look at the 5 indicator, a response to incidents and the reporting 6 part of that, that there are cases where there has not 7 been complete event information that was reported to 8 the state, reported to NRC. 9 DR. HINZE: Trends that you expect to see

and if you don't see that with the state, that indicates something is open to further review and inspection.

MR. LOHAUS: Yes, yes and our review 13 teams, and we've reinforced this through training, 14 15 we've reinforced this through the Management Review Board meetings, reinforced this through our reports. 16 17 We're really pushing very hard, working with the 18 states to insure that whatever data is reported to the 19 state from their licensees, that they, in turn, make 20 sure that that data is reported to the NMED system and 21 any updated information because you may get the 22 initial report information but then you want to 23 understand what was the final outcome from that, was there a root cause and was that event closed out and 24 25 particularly for a source that may be lost or stolen.

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1	Do you want to track that through because in many
2	cases, they're found and you want to make sure that
3	that's identified within the NMED record, within the
4	reporting record so you understand that that source is
5	no longer accounted for, that it has been accounted
6	for and has been found and it's closed out in the
7	record so that is an area where we're continuing to
8	work with the states and they're being very
9	responsive. They're working as well, but there are
10	some cases you'll find where we've made comments and
11	recommendations to the state programs to improve and
12	insure that they're providing the complete information
13	to us.
14	John, I don't know if you have anything
15	further on this, but I think this is an area where we
16	have
17	MR. ZABKO: Any other questions?
18	MR. COLEMAN: I recently spent some time
19	going through the NMED data base looking at one
20	specific topic, uranium hexafluoride incidents that
21	have been reported and it appears that some years ago
22	there was a change made because there were many
23	incidents of very minor releases and then I guess
24	starting five, six or seven years ago, there seemed to
25	be required more of a trigger for something to show
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46 1 up in the data base. Could you comment on that? Was 2 a change like that made? 3 MR. LOHAUS: That's -- I apologize, that's 4 outside my area, field. What I might suggest is maybe 5 direct that question to the field cycle staff. I'm just not aware of any change that may have been made 6 7 in the terms and the guidance that they provide for 8 reporting that type of information. And I can 9 certainly take the issue and follow up or if you all 10 want to maybe pursue that with the Division of Fuel Cycle in NMSS. 11 12 MR. ZABKO: Part of this other on the five common performance indicators of response of incidents 13 The allegations we've checked 14 and allegations. 15 through also to see that they're following up and in closing out and making the appropriate contact with 16 17 the allegers during and after any investigation to 18 make sure it matches the standard program and the 19 standard things that we'd like to see happen with

The non-common performance indicators, as I indicated earlier only apply to certain states and for example, the license and program elements required for comparability wouldn't apply to the NRC regions. They're under the 10 CFRs. We wouldn't be looking at

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allegations.

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their compatibility but we would in the Agreement States because as Paul discussed, they do promulgate their own set of rules that has to be compatible in order to verify that they are keeping up on amendments to the CFRs and that their baseline rules are compatible to start with.

7 As you can go down the list there and see that each one of those would be individual to certain 8 9 Agreement States. Sealed source and devices, all the states do not have a sealed source and device partner 10 11 program, they can choose to or not to. The NRC assumed responsibility for the Agreement State can in 12 their agreement with the NRC. The same goes for low 13 14 level radioactive waste and uranium recovery program. 15 We would not send a team member along to a state that didn't have that part, nor would we consider that in 16 17 the program.

After the teams have done their onsite 18 19 part of the IMPEP review, they put together a draft report and this is the first full report that gets 20 reviewed through the team and through the Agreement . 21 State management. We give them a chance to respond to 22 23 anything that they see in the report and they have to respond back to the NRC in 30 days with a draft 24 Prior to leaving the onsite portion of the 25 report.

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48 1 IMPEP, we do meet with staff and meet with the 2 management so the draft IMPEP report will not say anything that they don't already know. 3 4 One of our biggest -- one of the program's 5 keys is too, there are no surprises during the review. During the week there's constant interaction between 6 7 the team leader and the management of the state or the 8 region and the team members, so that as items come up, 9 they can either be dealt with, explained or the 10 threats are pulled deeper to find the root cause and 11 all that comes out in the draft reports and the states 12 should not see any surprises when they see that 13 report. 14 And they'll answer are either suggestions 15 for improvements or they will go through the report and give other corrections, factual corrects or edits 16 17 that they need to have. Following that process, we set the Management Review Board up to -- for NRC 18 19 management to evaluate the team's findings and to 20 allow officially the Agreement State or regional 21 supervision to come in and have the report presented 22 to them. 23 It's an independent board, as it states here which makes the final determination of adequacy 24 and compatibility. Before the MRB, the MRB members do 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	not have any contact with the report or with the team
2	themselves with the exception of a cursory management
3	review from STP. Sometimes management and the state
4	trial programs will review the report just for
5	editorial or for program consistency but the idea is
6	to not influence the team's decisions. The team's
7	recommendations are the team's recommendations until
8	the Management Review Board reviews all the facts that
9	are presented during the meeting and makes a final
10	determination on each category of the common and non-
11	common performance indicators as we discussed earlier
12	and the overall program.
13	MR. LOHAUS: If I could interject here, to
14	me this is one of the strengths of the program and you
15	wouldn't see this in our past review program. And the
16	strength is, you have an independent review team with
17	a common set of criteria that are applied uniformly to
18	the states and to NRC and the team has the tough job
19	of applying those criteria in a very objective way and
20	making the hard call, does the program meet the
21	criteria or not meet the criteria and the Management
22	Review Board process provides ability to consider
23	factors outside of the objective review criteria.
24	Now, and I'll give you an example of that.
25	The strength is you've got an independent review team,
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comes in, does the review, comes in and says objectively you look at this program, okay, what program it is and whether you all were to look at it with a criteria, I would or the MRB, everybody should come out at the same point in terms of where that program is. The Management Review Board, though, has the ability to take other factors into consideration.

8 And an example is, one program, state 9 program, was well behind on inspections. The team 10 made the call, did not meet the criteria for inspections but what had occurred is that state had 11 experienced a whole series of rather significant 12 incidents. They had diverted the staff that would 13 14 normally be doing the inspections to respond to, 15 investigate and follow up on those incidents, 16 obviously a greater health and safety area.

17 The Management Review Board took that 18 factor into consideration in looking at the program 19 from a totality standpoint. The team did the right 20 thing, made the hard call on the criteria but the 21 Management Review Board looked at it from a broader 22 perspective in terms of where is the greater health 23 and safety benefit, if you will, from that program, so I think it's a strength that we have in the process to 24 25 have the multiple layers of oversight, if you will,

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1 the team and then the review that's done by an 2 independent management review board and that 3 Management Review Board also includes an Agreement 4 State program manager that serves as a liaison to the 5 board. The individual is not a voting member, only 6 the NRC members are voting but you have a state 7 management perspective that's considered and factored 8 into the decision process both for a regional review, 9 for an NRC regional program review and also for a 10 state program review.

11 And maybe one final comment, you know, the 12 item here that talks about sharing the draft IMPEP 13 report, I think that's another important step. We did 14 not do that in the past. We do that under impact. We 15 give the region and the state program an opportunity -16 - the team does, the review team does, an opportunity 17 to see the report. Again, it's part of communicating 18 and insuring openness and transparency in the process 19 and then the team has an obligation to consider any 20 comments that the program may have, factual comments 21 on the results of the review, what the program is 22 doing, things of that nature, not necessarily not on 23 the findings but on the factual correctness of the 24 report.

And the team has an obligation to do that

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1	within a 30-day timeframe was well. So 30 days after
2	the review, there's a draft report that's issued and
3	I think that's an important aspect. And John pays
4	very close attention to the timing. That's part of
5	his responsibility.
6	CHAIRMAN RYAN: Latif?
7	MR. HAMDAN: But this is done every four
8	years, right?
9	MR. LOHAUS: Or more frequently.
10	MR. HAMDAN: Or more frequently. So my
11	question is, what triggers a more frequent review? Do
12	you have reports that come to NRC from the state that
13	you review and that triggers, you know, maybe every
14	three years or four years or longer?
15	MR. LOHAUS: If you move down to Item
16	Number 22, John was going to talk about this, but
17	there's two things. One is the results of the IMPEP
18	review are considered by the review team and by the
19	Management Review Board and in those cases where a
20	program is experiencing performance difficulties, we
21	may go back in a year, we may go back in two years,
22	rather than four years. What we also do is between
23	the IMPEP reviews, we will go out and hold what we
24	call a periodic meeting with the state and one of the
25	focuses of the periodic meeting is to try and keep our

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1 pulse on what's going on and if we see emerging 2 performance issues, or we see that they're getting 3 behind on inspections, that is briefed to the Management Review Board and there's a conscious 4 decision, are there additional actions that NRC should 5 6 take in working with the state, either should we move up the schedule on the IMPEP review, should we place 7 8 the program on monitoring which means we begin to have 9 calls with the state on a routine basis to see where 10 they are, "Are you catching up on your inspections", 11 et cetera and so that's used as a way to try and keep 12 our pulse on the status and what's going on between that four-year timeframe. 13

MR. HAMDAN: I can see that when NRC gets involved and does a review, you know, the job is done. The question I am thinking about while you were talking is, are there signals or flags or thinks, you know, reports that the Agreement States sent to you that triggers these meetings other than the regular review period of four years?

21 MR. LOHAUS: We have the ability, if we 22 gain knowledge through program discussion, maybe the, 23 you know, program -- discussion with the program 24 manager or discussion with the program to identify an 25 issue such as that and take it into the MRB. I've not

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1 seen a case where we've done that. The focus has generally been coming out of the periodic meetings but 2 3 there is routine interaction. I mean, there's daily 4 routine interaction that not only myself and my staff have but also the regional staff have with the states 5 6 every day. And if we see issues that are coming up, 7 those issues are going to be -- we're going to pursue 8 those issues between the IMPEP reviews. We have the 9 ability to do that. I'm just not aware of any cases where we've done that. We've put states on monitoring 10 and increased our contact with them in a more formal 11 way based on that kind of feedback during the periodic 12 meetings but not necessarily, at least that I'm aware 13 of let's say a routine phone call, if we will, but we 14 15 have the ability to do that.

I think if you took a CHAIRMAN RYAN: 16 17 subject, for example, the use of let's say RESRAD as a code that's used in regulatory decision making. You 18 19 know that came out of Argonne National Laboratory and 20 awful lot, at least Ι you'11 see an have. communication among state agency folks, you know, one 21 Agreement State to the other, "How did you do this", 22 23 or "What was your approach to that". As well as to So the two organizations that Paul the NRC staff. 24 mentioned, the Organization of Agreement States and 25

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1 probably the more CRCPD on the technical 2 implementation type of stuff, you know, RESRAD and 3 other tools that might be out there, you'll see states 4 talking to each other because of the commonality 5 that's offered through the Agreement States Program 6 because they know they work under the same rules so 7 it's easy to say, "How did you do this"? So I think 8 lot of you'll qet а that sort of proactive 9 communication, not just on when problems occur and 10 that I think is a helpful source of information of 11 this type. 12 MR. LOHAUS: Yes. 13 MR. ZABKO: We've touched on a lot of the

14 things that up till 23 but I'll just cover them to 15 make sure we go through them. The regional or state 16 invited to the MRB for management are their 17 participation and so they can hear the debate that 18 goes on at the MRB which is also very enlightening for 19 the program.

20 Out of the MRB will come an Agreement 21 State -- for an Agreement State will become a decision 22 on the adequacy or compatibility for that -- for that 23 program, compatibility, again, being the statutes and 24 rules and other program elements required for 25 compatibility that you wouldn't see in the NRC regions

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56 1 which is the next one, in a region that we'd only say 2 they were adequate. a sample MRB team would be listed for you 3 in 21. The Deputy Executor for Materials, Research 4 and State Programs, Director of Office of Nuclear 5 Material Safety and Safeguards, Director of Office of 6 7 State and Travel Programs, a number of -- the General 8 Counsel and the Agreement State Program manager from

9 one of the Agreement State Programs. 10 Again, we talked about periodics, the periodic Agreement State meetings do take place in 11 between the IMPEPs or any time that we do sense a 12 program need for a periodic. Procedures that we go 13 14 through to help an Agreement State get back on track if they are -- if we do notice program issues. 15 а letter accompanying the final impact report is issued 16 17 state management with recommendations. to the 18 Normally, you know, there will be one or two 19 recommendations out of each impact report. I've seen some with none, I've seen some with more, but on the 20 average one or two specific items such as what to do 21 -- we'd suggest something in your licensing or we'd 22 complete 23 something to help you your suggest inspections on time. And they are just -- they're not 24 prescriptive but they are enough to bring attention to 25

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1 the goal we want to have achieved and maybe a 2 direction to point them into to increase their 3 performance.

4 And then as you see, the next listed there As a state exhibits in order of severity. 5 are programmatic problems we start with monitoring which 6 is the least oversight mechanism here at the NRC 7 which, as Paul mentioned, is just periodic calls to 8 the state, "Are you caught up on your inspections, are 9 you hiring new staff, how is the budget going that 10 11 you've said during the IMPEP was impacting your 12 program", things like that and that's done from the and state Agreement State Officer the 13 regional Agreement State Officer here at STP. They combine 14 15 along with STP management to conduct those meetings.

The next one up is heightened oversight 16 which is more formal, which is -- we're asking for a 17 18 program improvement plan. We check that program 19 improvement plan. The calls are scheduled more frequently and more answers are requested from the 20 state as specifically, "How are you doing", and, "How 21 are you approaching the goals that you set out". And 22 as you can see, they get worse, more severe as you go 23 down; probation, emergency suspension, suspension of 24 agreement and termination of agreement, which if I'm 25

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not mistaken, I don't think we've pursued any of the last four since the program.

3 MR. LOHAUS: There's one case, going way 4 back in history, the Idaho Program, which I think 5 really was a joint effort. They basically lost all 6 staffing in the program. So NRC was faced with reassertion of authority but it was really also at 7 state request, if you will. 8 The governor has the 9 ability to request suspension or termination as well. 10 That's one case and another, it was requested by the 11 state with New Mexico. They turned back their mill 12 portion of the program going back into the early '70s but both of these are way back in the early days of 13 the program. 14

15 MR. ZABKO: Any other questions that you
16 might have?

17 CHAIRMAN RYAN: You know, it seems like I 18 guess and most everybody is at the monitoring step or 19 kind of the base of the program. Are there many at 20 the heightened oversight or -- and if there are, I'm 21 not looking for specific states but what's the issues 22 that you see as common to get folks to the heightened 23 oversight step?

24 MR. LOHAUS: Let me start and, John, 25 please chime in, but one there -- today there are only

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1 three states that are on monitoring. In other words, 2 if you look across the states, the states carry out 3 very effective programs that meet the criteria. Today there are five programs that are in what I would call 4 5 the middle category. In other words, if you look at 6 the overall findings that the agency makes, there's an 7 adequacy finding, which is the top finding. The 8 middle finding is adequate but needs improvement. And 9 then the bottom finding is inadequate. There are five 10 programs that are in the middle category which means that their programs are experiencing some performance 11 difficulties 12 and there areas that need are improvement. 13

14 Three programs are on what we call 15 monitoring where we're staying in touch with the state and talking with them and hearing from them in terms 16 17 of the progress that they're making to address areas 18 that need attention. There are two states today that 19 are on heightened oversight and the primary reasons for those programs being on heightened oversight are 20 satisfactory but needs improvement findings for one or 21 22 more of the performance indicators or an 23 unsatisfactory finding for one or of the more performance indicators and one of the areas that's 24 25 common to those two programs and I'm sure you're very

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familiar with this also, Mike, is keeping regulations up to date.

3 Both of these programs are way behind on 4 keeping their regulations up to date and we've made hard call and we've asked for 5 the а program improvement plan from the program to address getting 6 the regulations up to date. In addition, if you look 7 at these programs there are other areas in the program 8 experiencing 9 in their programs that were difficulties. Status of the inspection program, they 10 were behind on inspections, is another area. Staffing 11 is another area that I think is common in terms of the 12 lost staff. They did not replace staff. They're 13 difficulty training staff and it was 14 having 15 compounding their ability to complete inspections and I think generally if you look across the programs, 16 those programs that do experience difficulties, the 17 this is just a broad 18 root cause in the main, 19 generalization, in the main is generally related to the staffing and training staff. And I think -- I 20 mean, it's basic to program administration, if you 21 don't have sufficient staff, it's going to effect the 22 general administration of the program. 23

Now, there may be other aspects as well, but I think from my experience, that in the main has

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1 been the sort of the root cause of those programs incurring some difficulties. But at the same time, 2 what we've found is when we use the heightened 3 4 oversight process, with very, very, few exceptions, that process has proved to be very effective in terms 5 of focusing the state management, in focusing the 6 7 program on addressing the area that need improvement and in a very short period of time generally on the 8 9 order of a year.

10 What we do with a program with heightened 11 oversight is, we require a program improvement plan. 12 We monitor that plan both in terms of progress reports 13 and bi-monthly phone calls to review the progress. We 14 go back in a year and do a follow-up review and really 15 check each of those areas to make sure that they've brought them back up to where they should be. 16 And what we've found is with that heightened oversight 17 18 process, within about a years time frame with very, 19 very few exceptions, the program has been able to address the areas, bring the program back to where it 20 is and then normally what we'll do is we'll put the 21 22 program on monitoring. We'll take it off of heightened oversight and continue to monitor the 23 performance to make sure there's some period of 24 25 continuity in terms of meeting the performance

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criteria.

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2 But it's -- it appears to be effective and 3 I think that also given the peer review aspects and 4 the commitment that you see within the state programs, 5 they're committed to doing a good job in their 6 They want to address that. programs. They want the 7 program off of heightened oversight and they want to 8 do it as soon as they can and it seems to be a good, 9 effective process.

10 In many cases we'll find when we go out 11 and do an IMPEP review, the state has actually done a That's the 12 self-audit. state's staff gaining experience working on IMPEP teams, they're doing their 13 own IMPEPs, their own review, self-audits before the 14 15 review team gets there and they know generally if there are weaknesses, where those weaknesses are and 16 17 in many case they're taking action independently to 18 address those areas even in the absence of NRC coming 19 in to look.

So I think the program has a lot of strengths and you know, where we do identify problems with these five programs, we use the tools that are there and it's short of suspending or terminating the agreement, well short of that and the states are committed to do what they need to do and you can see

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1	it happening. It's good.
2	CHAIRMAN RYAN: Well, I mean, the strength
3	to me is that, you know, it's to your credit and the
4	credit to the whole staff that you're involved at a
5	stage before it needs to be punitive or negative.
6	It's collaborative and it's corrective.
7	MR. LOHAUS: Yes.
8	DR. WEINBERG: So that's a real positive.
9	And I would guess that sometimes an audit that, you
10	know, gets them into a needs improvement category and
11	having heightened oversight is more of a help to a
12	state program director than a hindrance because it
13	gives him something to communicate with upper levels
14	of state government management on what the issues are.
15	It's not just his own thought but it's from an outside
16	review like the ones you're doing.
17	MR. LOHAUS: Exactly, and there's cases
18	where the state and senior management within the
19	state, I mean, going to the governor level and
20	legislative level have taken action to increase
21	staffing to address issues that the program in and of
22	itself, has not been able to bring sufficient
23	attention to and it's really been a plus and it's
24	improved the program. It's provided increased
25	staffing and through that, increased protection of
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public health and safety. So, yes, you can see that.

2 CHAIRMAN RYAN: Let me shift gears a 3 moment to both of you and have you put on your 4 thinking caps. What are your big challenges that you 5 face and how can the ACNW help you?

MR. LOHAUS: Well, this is -- if you look 6 7 at the programs that are there, and you can look at the low level waste disposal area, I think that's 8 9 going to continue to be an area of challenge for the 10 states collectively. And it's an area that I'm not 11 certain how much, you know, NRC can do from a 12 regulatory standpoint. We have regulations in place, 13 have quidance in place. The states have we 14 regulations, regulations and comparable guidance but 15 I think if you look at the -- sort of the national situation, I think low level waste disposal is an area 16 17 that is going to be a challenge and is an area where 18 ACNW may be able to provide some assistance in terms 19 of waste to help address that.

CHAIRMAN RYAN: Let's probe that a bit more because that is in our action plan. Low level waste is in our action plan for 2005. As we look at 61, a couple of things jump out at me. One is, it's the only place where there's an organ dose. We know the dosimetry is not based on, you know, more current

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thinking that backs up say Part 20 or other parts.

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Two, we think about the technical criteria and their sort of lack of specificity for citing or lack of interpretation of how those can be applied successfully. Sometimes the states kind of are on their own to do that. Are those fruitful areas to think about or are there others or how do we move ahead?

9 Having been very actively MR. LOHAUS: 10 involved in the initial development of Part 61, I've 11 always looked at the rule as providing both a 12 performance based set of requirements that you can apply to the full suite of near-surface disposal 13 14 technology and did not constrain, if you will, 15 application to methods that would use engineered 16 technology, whether it be below-ground vault or earth-17 mounded concrete bunker, whatever. Yes, you could 18 certainly address and provide greater specificity in 19 terms of requirements but at the same time, I think 20 where I come out in looking at this, just this is, you know, me speaking, you know, from my perspective, I 21 22 think the rule can serve both NRC and the states in 23 licensing not only, you know, a current near-surface 24 technology but also other kinds of engineered facilities and the implementing guidance, the standard 25

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1 review plan and the standard format and content guide 2 to me provide a good foundation and a good basis that 3 can be applied. So I'm not certain. You'd have to 4 sort of balance the resource requirements to develop more specificity in the requirements with the current 5 6 set of requirements in terms of their ability. And my 7 sense would be, as I -- you know, that there's good ability in those requirements to license a full range 8 9 of disposal tools.

10 CHAIRMAN RYAN: Yeah, I think if you take 11 the standard review plan and the content 12 documentation, that's a big help. What I think the 13 challenge is, though, is it risk-informed and you know, I would say that if you look at the intruder 14 15 scenario and some of the other things, it probably isn't on face value but that doesn't mean it can't be. 16 So I wonder, you know, as we consider issues about low 17 18 level waste in 61, it's a good bit of advice to us to 19 sure we really have good Agreement make State 20 representation and Agreement State program representation in any working groups or other things 21 that we might do to formulate a view of that. 22 MR. LOHAUS: Absolutely. 23 CHAIRMAN RYAN: That makes sense.

24 25

MR. LOHAUS: I mean, if you think about it

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1	and look at the experience, the experience has been I
2	the states. Texas, I mean, Texas has an application
з	under review today.
4	CHAIRMAN RYAN: In fact, the NRC has never
5	received an application under 61, if I recall right.
6	MR. LOHAUS: That's correct. Yes. But
7	you're exactly right. I mean, again, this is one of
8	the benefits of the working group process, too, is to
9	bring together state and NRC resources and expertise
10	and deal with common technical issues or common policy
11	or
12	CHAIRMAN RYAN: We've found it effective
13	to gather information, you know, in our role as
14	advising the Commission, so I'm sure we'll be back in
15	touch on that subject. Anything else on your list of
16	things we could do?
17	MR. LOHAUS: Not that I can think of right
18	at this time, Mike, but we'll certainly stay in touch
19	and share anything in the future.
20	CHAIRMAN RYAN: That's great. And, again,
21	I think you've got a very robust program. You should
22	be very proud of the work you're both doing and your
23	entire team and I guess as we consider this, the
24	thought that strikes me and I'll just throw it out to
25	everybody as food for thought, that we often write
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1 letters about things we think need to be fixed but we 2 also need to write letters from time to time on things 3 that are working well and why. So I quess we would 4 maybe work with you on getting some of your other 5 documentation that we've talked about and thinking 6 about that and maybe writing a letter on the subject 7 of the Agreement State Program and the IMPEP program and how it seems to be working guite well. 8

9 there's MR. LOHAUS: Sure. If any 10 information -- I mentioned the earlier Commission paper on the National Materials Program and the NMED 11 12 documentation but if there's anything further another strength to IMPEP is it's proceduralized. 13 Ι 14 mean, there's not only a general set of procedures 15 that provides the overall criteria but then there's detailed procedures that the reviewers take out in 16 17 terms of how they do their reviews and document their 18 reviews. You know, that's certainly available if 19 you're interested in looking at that from a more detailed level. 20

CHAIRMAN RYAN: Yeah, I think that body of information would help us and then think about the challenges that are out there in maintaining that consistency in the face of what, you know, folks like the Health Physics Society have identified on manpower

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1	crises and we all know that, you know, state program
2	turnover rates are much higher than other elements of
3	radiation protection industries and so forth, just
4	because of salaries and the nature of those kind of
5	jobs and so forth and it's you still have a quality
6	level in spite of some of those challenges and so
7	forth. So
8	MR. LOHAUS: It's a credit to the states.
9	I mean, they cross as I said, across the board,
10	they're committed, dedicated professionals, public
11	servants and they're committed to doing a good job.
12	It's a good program.
13	CHAIRMAN RYAN: Well, thanks for the
14	update. Any other questions or comments?
15	DR. WEINBERG: How have you handled or
16	have you been able to handle the question that
17	different states have different financial bases and I
18	happen to live in a very poor state, the State of New
19	Mexico. And I'm sure that the personnel are paid
20	are supported differently the resources available to
21	the states for this program are very vary widely.
22	MR. LOHAUS: Yes.
23	DR. WEINBERG: How do you handle that?
24	MR. LOHAUS: That's a very, very difficult
25	area for the states. We don't dictate how the states
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1 provide revenues for the programs. In some cases, it 2 may be general fund. We have encouraged state 3 programs to adopt fee systems and I think if you'll 4 look across the programs today, most of the programs 5 and I should know the answer whether it's all, I 6 don't, but I'm pretty certain almost all the programs 7 do have a fee system.

8 Some are a percentage of NRC's fee system. 9 For example, I think one of the states, for example, 10 has a fee system that's 75 percent of NRC's fees. 11 Others are based on internal state analyses, but I 12 think in those cases where the programs do have good fee systems, they are able to provide a sufficient 13 base of revenue to the programs and then support an 14 15 adequate base of staffing which then is reflected in the overall performance of the program. 16

17 One of the things that the Conference of 18 Radiation Control Program Directors has initiated to 19 try and help state programs in this area, is they're 20 working on what they call a profile of information and they're going out to each of the states and developing 21 information on their fee systems, personnel and other 22 23 areas, and then they want to share this information more broadly among the states. And I think that's 24 25 going to help because we've sort of done that

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1 || informally in some cases.

2 For example, one of the states that was on heightened oversight, we shared with that program 3 analyses that another state had done in terms of 4 looking at its resource needs, its funding needs, how 5 it was addressed through a fee system and they use 6 7 that information as background to help support their request. So now the states are looking at this more 8 broadly. So I think that will help as well, but it's 9 a tough issue and I think it's going to continue to be 10 there and you will see the variation and it's a 11 challenge that the state programs face. 12

From what you've said, it is 13 MR. CROFF: fair to infer that when states started to get into 14 some difficulty that the root cause goes back to 15 basically budget, that if they had enough money, they 16 would -- I mean the regulations would be up to date, 17 the inspections would be done and all this kind of 18 19 stuff or is there something else that generally or fairly frequently tends to cause this? 20

21 MR. LOHAUS: I think, as I said, from a 22 broad brush general overall standpoint, to me I think 23 the root cause does go back to staffing and training 24 of staff. And you can certainly relate that back to 25 resources for the program. But in some cases, it may

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1	be that they have not been able to fill positions or
2	retain staff in positions because of a low salary
3	structure for example. And they have the resources to
4	fund those positions but they may an individual may
5	work there for a period of time, get trained and then
6	move onto another job and they're continually faced
7	with having to hire staff. So it's not necessarily
8	related to the budget but it's related to the
9	structure of their positions and the salary for those
10	positions. So I usually characterize it as it's
11	related to the staffing and the training of staff.
12	CHAIRMAN RYAN: Do you track turnover
13	rates, just out of curiosity?
14	MR. LOHAUS: We do not, no.
15	CHAIRMAN RYAN: It's an interesting thing
16	to think about.
17	MR. LOHAUS: We look at the each
18	program we look at the as John mentioned, that they
19	have enough FTEs to do that work and that those
20	individuals are trained to do the kind of technical
21	work that's needed in that program.
22	CHAIRMAN RYAN: Right.
23	MR. CROFF: Is, let's say budget
24	appropriation or and/or head count in a particular
25	state's program, is that any kind of a useful early
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1 warning indicator that, you know, they may be headed for trouble if their budget gets cut or --2 MR. LOHAUS: Yes, it is and that's one of 3 the things that we do -- during the meetings for 4 example, we look at where they are with their people. 5 We look at you know, do you have adequate resources 6 7 and things of that nature. Okay, I'd like to change 8 MR. CROFF: topics onto I'll call it trending. If you look at the 9 results of your reviews over a period of the last few 10 or several years, are you seeing the number of, I 11 quess, findings and difficulties that are observed? 12 Are they going up or down? Is there any systemic 13 issues in there that seem to be coming up? 14 MR. LOHAUS: I think, and I don't have 15 this like in a histogram, but I think if you look over 16 the past IMPEP cycle, not the current cycle we're in 17 but the past IMPEP cycle, I think we saw an increase 18 19 in the number of states that were placed on heightened looking other words, in back 20 oversight. In historically, there was maybe one or two programs at 21 the most on heightened oversight during any one annual 22 cycle, let's say and for the -- over the past cycle, 23 John may have to help me here, too, but we've had more 24 25 than one and in some cases up to three and today we

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1	have two, that are on heightened oversight.
2	My sense it though, is that we're sort of
3	we may have hit a peak and we're sort of heading in
4	the other direction now where those programs that were
5	experiencing difficulties are recovering, they're
6	taking action to recover and some are they're still
7	uncertain, they're still in heightened oversight and
8	we don't know what the results of that will be until
9	we complete the heightened oversight program. But I
10	think, yes, I think we did see a small increase but my
11	sense is that I think we're past that.
12	What you see is there's a lot of interest,
13	a lot of focus within the individual programs to want
14	to do a very effective job. And when we come in to do
15	an IMPEP review, they want to come out of that with a
16	clear IMPEP, if you will, with the full the highest
17	rating is satisfactory. I mean, it carries with it
18	performance well above the criteria but that's the
19	highest rating we have. They want to come away with
20	a fully satisfactory finding across the board, but at
21	the same time, as I said, when we do identify problems
22	they are addressed that the states are committed to
23	addressing the programs.
24	We have program improvement plans from
25	those states and they're implementing those plans.

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1 MR. CROFF: Okay, and it would seem that 2 maybe, let me call it a bottom line metric, would be 3 that to reduce the number of let me call it normalized incidents in a state of releases or something that 4 5 wasn't supposed to happen, and, you know, your program 6 is trying to insure that the state programs and the 7 regions, you know, are stepping up to this, but at that bottom line measure, is there any use of that? 8 How are the number of incidents going? Is there such 9 10 a metric?

MR. LOHAUS: Yes, there are and what I 11 12 would refer you to are the performance reports that NRC prepares and I believe that the 2004 performance 13 report was just recently completed. But what the 14 15 agency does, it uses the set of NMED data to address 16 the metrics that we have. They relate to overexposures, control of material, things of that nature 17 and all of the metrics were met in 2004. 18 And you know, from an outcome standpoint, you know, obviously 19 if you will, in terms of 20 that's the outcome, 21 protecting health and safety that the programs reflect. 22

And you can also look historically within the other reports but you know, as I said, you may want to -- one of the items is get the 2004

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1 performance report because there are specific metrics there that reflect the collective efforts of NRC and 2 3 the Agreement State Programs. 4 CHAIRMAN RYAN: That would be helpful to 5 get that report. Any other questions? Bill? 6 DR. HINZE: Are there any soft spots in 7 that, that you can identify for us? MR. LOHAUS: I mean, obviously in 8 No. 9 today's environment, the states and the NRC are 10 clearly focused on reducing the number of lost or stolen sources. I mean, the whole issue of control of 11 12 sources is a very key, important are but I can't think of any specifics to offer in terms of response to your 13 14 question at this time. 15 DR. HINZE: It might be useful for us to 16 take a look at that. 17 CHAIRMAN RYAN: At 1:00 o'clock this afternoon we're going to hear a case study on that, so 18 19 we'll learn a little bit more about that. DR. HINZE: That will be soon enough. 20 21 CHAIRMAN RYAN: Jim, any questions? 22 DR. CLARKE: Just to follow up on 23 something you mentioned earlier, in many respects this 24 program sounds a lot like the EPA program with the 25 states where a state can have what they call primacy NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1 under certain environmental laws as long as their regulations are at least as stringent as the EPA, 2 And you indicated that states have 3 federal EPA. 4 adopted more stringent regulations in some cases. For example the dose limit under the LTR, is it the 15 5 that they've gone to? I was just kind of curious. 6 MR. LOHAUS: Some are using a 10 millirem. 7 DR. CLARKE: Ten? 8 Yes, I should be able to 9 MR. LOHAUS: explain and tell you why 10 but I think Massachusetts 10 11 program for example --Okay, the EPA has suggested 12 DR. CLARKE: 15. 13 That's correct, yes. 14 MR. LOHAUS: 15 DR. CLARKE: I wonder, is that common or is yours exceptional? 16 No, it's exceptional, yes. 17 MR. LOHAUS: I'm sorry. DR. CLARKE: 18 MR. LOHAUS: I was just going to offer one 19 point of to me importance when looking at EPA's 20 programs versus the Agreement State Program. The EPA 21 programs are what I would call a delegation program 22 whereas, with the Agreement State Program, it's a 23 NRC is actually giving different process. up 24 It's not a delegation. We're actually 25 authority. **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS

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1	relinquishing authority and the state is assuming
2	authority under independent state laws, but at the
3	same time Congress provided the oversight
4	responsibility that we have to insure adequacy and
5	compatibility and a consistency in the programs.
6	But that, to me, is an important
7	distinction because with EPA you're really
8	implementing federal rules, if you will, whereas in
9	the Agreement State Program, the state actually adopts
10	regulations under state statutes and has a requirement
11	to maintain those within the bounds of the federal
12	rules.
13	DR. CLARKE: Okay, thank you.
14	MR. LOHAUS: Thanks.
15	CHAIRMAN RYAN: Other questions or
16	comments? Again, gentlemen, thank you ver much for a
17	very informative briefing on the Agreement States
18	Program. It sounds like it's robust and well and
19	doing a good job of keeping states focused and on the
20	right track. Thanks very much.
21	MR. LOHAUS: Thank you.
22	CHAIRMAN RYAN: We're now at the point in
23	our agenda where we're scheduled for a short break, so
24	let's go ahead and reconvene at let's make it 10:25
25	and we'll take up at that time our working group
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1	planning session. We don't need to be on the record
2	for that. Yes, we'll be back on the record at 1:00
3	o'clock. All right, thanks very much. We'll be back
4	at 10:25.
5	(Whereupon, the proceedings went off the
6	record at 10:09 a.m. and resumed at 1:06 p.m.)
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1	A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N
2	1:06 p.m.
з	CHAIRMAN RYAN: On the record. Welcome to
4	the afternoon session. We'll go ahead and get
5	started. The topic this afternoon is Control and
6	Tracking of Sealed Sources and we're going to hear
7	from a number of speakers this afternoon including
8	folks from the NRC staff, the Department of Energy
9	that has an important role in the sealed source.
10	management and some experiences from the Maryland
11	program as well as from the State of Texas and finally
12	from Terry Devine from the Conference of Radiation
13	Control Program Directors. Do we have everybody on
14	the telephone?
15	DR. DEVINE: Terry Devine here.
16	CHAIRMAN RYAN: Good afternoon, Terry.
17	How are you? It's Mike Ryan. And how about anybody
18	else?
19	MR. MAJOR: Bob may be an hour behind us.
20	CHAIRMAN RYAN: He's out of whack. Okay.
21	Well, that's fine. Without further adieu, let me ask
22	Tim Harris to give his presentation, the NRC's
23	perspectives on sealed source management. Welcome,
24	Tim. Thanks for being with us.
25	MR. HARRIS: Thank you. Good afternoon.
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1 Well, I'm very happy to go first. My name is Tim 2 Harris and I'm Section Chief for the Materials and 3 Safety Inspection Branch in the Division of Industrial 4 and Nuclear Medical Safety in the Office of NMSS. I'm 5 here this afternoon to provide some NRC's perspectives 6 regarding sealed source management issues. I'11 7 attempt to set the stage for later speakers. We have 8 DOE and agreement states. So I'm not going to go into 9 too much detail on topics that they may cover in 10 fairness to them.

This presentation will provide information 11 regarding NRC's initiatives that were referred to in 12 recommendations one of three of the ACNW letter dated 13 14 October 17, 2002 on orphaned sources. Recommendation 15 two dealt with providing geopositioning technology to facilitate tracking of significant sources. 16 At this 17 time, none of those initiatives are currently being 18 actively pursued or considered.

Specifically, I'd like to provide some 19 20 information on the mandates or drivers involved in that the 21 controlling sources are reasons and requirements for controlling sources. I will also 22 23 discuss some initiatives to implement the control and 24 tracking of sources and also discuss efforts that we 25 have to recover sources.

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1 I will note that we have Michele Burgess 2 in the audience who is intimately involved in the recovery program and Merri source Horn who is intimately involved in the source tracking. So at the 5 end depending on the level of detail, I may ask them to assist in answering questions.

7 The ACNW is well acquainted with NRC's 8 mission to protect the public health and safety. 9 Certainly, the NRC is concerned with the protection of 10 the public from harmful effects associated with using and transporting sources, the effects associated with 11 potential accidents involving sources and the effects 12 associated with the loss of a source or that is when 13 14 it becomes orphaned. Following the events of 9/11, 15 the NRC has become more focused on controlling sources to promote the common defense and security and to 16 17 limit potential use of sources by terrorists.

External factors such as the IAEA Code of 18 Conduct have contributed to NRC's efforts to control 19 20 and track sources. In part, the IAEA Code of Conduct 21 recommends the establishment of a national source 22 registry for high risk sources.

The NRC has been historically actively 23 24 involved in controlling radioactive sources. The 25 following initiatives are recent examples more

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undertaken by the NRC to further enhance controlled sources. I'll discuss the last three initiatives, that is the National Source Tracking System, the General License Tracking and orphaned source recovery in a little bit more detail.

6 Since 1990, the NRC and the Department of 7 Energy have been working together to recover unwanted 8 sources with no disposal pathway. These sources are 9 typically in quantities that are at or near greater-10 than-Class-C waste concentrations. Joel Grimm is here 11 and he'll probably provide more detail on that. So I 12 won't go into that any further.

The NRC has implemented a loss source 13 14 enforcement policy. We did that in 2001. This policy 15 provides initiatives to ensure that proper control, transfer and disposal of sources by ensuring that 16 17 civil penalties outweigh the cost of disposal. That -18 is if you decide that you don't need a source and you decided it's expensive to throw it away if we find out 19 20 that you were the one that threw it away, we're going 21 to charge you three times what it would cost to 22 dispose of it. So the thought is that it would encourage people to dispose of sources properly. 23 The NRC also issued a proposed rule on 24

25 portable gauges and this went out for public comment

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1 in August 2003. The goal of this rule-making was to 2 increase the control on portable gauges in the field. 3 Typically, if you look at a vent report, it's not 4 uncommon to see a large number of gauges that get 5 misplaced or lost for a period of time. So these were efforts to ensure greater control over the portable 6 7 qauqes. The NRC staff has considered the public comments and has provided the final rule to the 8 9 Commission for approval.

previously discussed, there are 10 As Ι several mandates or drivers that promote NRC to 11 12 enhance tracking of sources. These include the U.S. Government's commitment to implement the IAEA Code of 13 The NRC, DOE and the State Department all 14 Conduct. participated in the development of the Code of Conduct 15 and are committed to its implementation. 16

The Code provides an infrastructure in 17 18 terms of legislative elements and regulatory programs 19 to be developed and promulgated by regulatory agencies within IAEA member states. The principles of the Code 20 of Conduct are directed towards ensuring sources are 21 22 managed and controlled in a manner to minimize the potential for unsafe management from a level at use 23 Currently, NRC regulations that is by terrorist. 24 25 don't require tracking of sources and we are underway

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1 to development a rule and I'll talk about that in just 2 a minute. 3 Before the rule is developed, the 4 Commission directed staff to taken an inventory of

5 sources. This is originally intended to be a snapshot б in time, a one-time effort. We were quite successful 7 in this voluntary effort. We looked at both sources in agreement states and in NRC states. So it was 8 9 basically a national inventory. It was completely 10 voluntary and I think we got 99.9 percent response, very high response. Is that right, Merri? 11

MS. HORN: Yes. We're down to three thathaven't responded.

14 MR. HARRIS: Yes, three that haven't 15 responded out of 2600 licensees. The Commission 16 knowing that we were going to develop the National 17 Source Tracking System felt that it was a good idea to 18 continue the interim inventory. So we're currently 19 underway in round two of the second year of the 20 interim inventory.

The interim inventory is limited to high risk sources. Just to give you an idea for those of you who may not be familiar with the different categories, I'm sure some of you are, Tech Doc 1344 that was produced by IAEA ranked the sources in terms

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1 of potential risk associated with malevolent use 2 considering normal quantities. Category one sources 3 are typically used in practices like radiothermal 4 generators, irradiators and radiation teletherapy. 5 sources are typically things like Category two industrial gamma radiography and high-to-medium dose 6 7 rate brachytherapy. Category three sources would be typically involved in practices such as fixed 8 9 industrial gauges and well logging. Category four 10 sources are used in practices such as low dose rate 11 brachytherapy, some industrial gauges and also static eliminators. Category five sources are typically used 12 in devices such as X-ray fluorescence devices and PET 13 check sources. 14 The interim inventory was used and is 15 being used to inform security advisories, additional

16 security measure orders, protective measure orders, 17 18 that are used to enhance security of radioactive 19 It also fulfills the IAEA Code of Conduct material. commitment to develop a National Source Registry and 20 again this is kind of a interim thing while we're 21 developing the ultimate National Source Tracking 22 23 System.

As I stated in order to implement the source tracking, current regulations do not require it

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and through OMB in order to require that information, 1 2 we have to go through rule-making. The big picture 3 plan is to have the proposed rule to the Commission in the spring of 2005 and have the final rule implemented 4 Again, it will be a national 5 in July of 2006. registry, that is, it will include NRC licensees, 6 agreement state licensees and also DOE facilities. 7 8 We've been working with Joel and other people in DOE to facilitate that. 9

10 Primarily the tracking's going to be webbased and it's intended to be cradle to grave. That 11 source is generated 12 is when а at а source 13 manufacturer, he will catalog and input that source into the registry and then the registry will track 14 transfers, that is, when it's sold to a licensee and 15 licensee transfers it, it will 16 if that track 17 transactions. We believe that this will improve the source accountability and give better information for 18 decision makers in the future. 19

20 Another measure that the Commission has 21 initiated to enhance security of sources was revising its regulations to require that certain generally-22 registered. Under NRC 23 licensed sources be 24 regulations, a general license is authorized which 25 allows persons to possess certain quantities of

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materials without obtaining a specific NRC license or an agreement state license.

3 Generally-licensed devices are used to 4 detect, measure, gauge or control thicknesses, density level or chemical composition of various elements. 5 You typically see those in industrial practices, say, 6 7 in the tank to gauge the fullness of the tank. There are approximately 600,000 generally-licensed devices 8 9 being used by approximately 50,000 generally licensees. If we look at where these devices stand in 10 terms of the IAEA categories, there are mostly 11 category four and five devices, although there are a 12 13 few that raise up to category three.

NRC amended its regulations to require 14 15 that certain of these devices above specified quantities be registered. These measures 16 have increased the tracking of generally-licensed devices 17 and increased the awareness of licensees who have the 18 generally-licensed device. Before we established a 19 tracking system, a specific license transfer the 20 device to a generally-licensee, but there was not 21 22 record-keeping. Given that some of these sources can 23 be category three, we implemented the tracking system. Next, I'd like to turn to recovery of 24 25 sources. Some of the initiatives we've developed in

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1 this area are an MOU with DOE on the management of 2 sources. This has been in place since 1999. The MOU 3 provides for assistance from the Department of Energy 4 on emergency recovery of sources as they become 5 orphaned. The Commission has also provided an open forum for individuals who find a source to come 6 7 forward through the Guiding Principles and the Staff Requirements Memo in April of 1998. 8 This basically 9 says that if a non-licensee finds himself with a 10 source that they didn't seek to have, that the NRC 11 wouldn't hold them accountable for disposing of the 12 source.

13 In addition since 2001, the NRC has had 14 cooperative agreement with the CRCPD in their National 15 Orphan Radioactive Material Disposition Program. We currently have a cooperative agreement with them since 16 17 2004 to fund their program for an another five years. 18 This has been quite a successful program with CRCPD. 19 If somebody doesn't want a source, they can post it on the CRCPD website and that kind of facilitates 20 21 somebody who does want a source. They can go there 22 and provided that their license to use it, transfers So it helps people that don't want a 23 can be made. 24 source anymore find people that do want sources. 25 There's also a trilateral initiative between the U.S.,

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which started 1 Mexico and Canada in 2002 for notification when sources become lost near borders. 2 3 In summary, the NRC has implemented a 4 number of initiatives to control sources and is 5 currently considering changes to its regulations to 6 establish a National Source Tracking System. In 7 addition to implementing measures to control sources, 8 the NRC has been actively involved in recovering 9 That concludes my presentation. sources. I'd be 10 happy to entertain questions. 11 CHAIRMAN RYAN: Thanks very much. An interesting presentation. Could you back up a slide? 12 I think it's the general license one. "Regulations 13 14 require registration notification." That's a forward-15 looking program, right? 16 MR. HARRIS: That's ongoing. 17 CHAIRMAN RYAN: And how are you catching 18 up with sources that are out there in the world? 19 MR. HARRIS: Well, for --CHAIRMAN RYAN: Or is this for new ones or 20 both? 21 22 MR. HARRIS: This is for NRC states only and we've gone through, I think, the first round of 23 24 registration and as you can imagine, we weren't as 25 successful as the interim inventory in tracking down NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	all of the sources. We were going through a risk-
2	informed process whereby we're identifying those that
3	we follow up on based on the transfer of device to the
4	generally licensee and the quantity of material.
5	CHAIRMAN RYAN: But it would seem to me
6	that that catch-up on the history of all of those
7	generally-licensed sources is probably where the
8	action is. Is that right?
9	MR. HARRIS: Well, we're registering plus
10	tracking down the historical sources as well.
11	CHAIRMAN RYAN: Yes. That's not what I'm
12	asking. Is that where the hard work is? I mean are
13	you having much success there or not? Tell me about
14	that.
15	MR. HARRIS: It's a little slower going
16	than the interim inventory.
17	CHAIRMAN RYAN: And I guess just thinking
18	about generally-licensed sources, what would you guess
19	your batting average might be on finding them and
20	registering them all? That's maybe a hard and unfair
21	question, but I'm just curious to get your insight.
22	MR. HARRIS: No. I would say if we get 50
23	percent I would consider that a success measure,
24	although my manager may not consider it. But that's
25	about what we're running.
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92 1 CHAIRMAN RYAN: Fifty percent, that's 2 interesting. And your source of information on how 3 many generally-licensed sources are out there comes 4 from? The manufacturers and the 5 MR. HARRIS: are 6 distributors required submit to periodic 7 notification of who they transferred the device to. 8 So it's basically transfer reports. I see Michelle 9 raising her hand. 10 MS. BURGESS: I'm Michele Burgess. I work in the same branch that Tim does and I guess to put it 11 12 into perspective is in GLTS (General License Tracking System) it's taking the old inventory is where they 13 14 had to report whenever they did a transfer and it's 15 bringing it up to speed and then moving forward. So 16 our success rate as we move forward would be much 17 higher. 18 CHAIRMAN RYAN: Right. Oh, sure. 19 MS. BURGESS: And part of the problem, it's not with the 50 percent. It's not 50 percent of 20 the sources are out there and we can't find them. 21 22 It's reconciling them off of that old data. The data 23 might not be right either because it was transferred 24 correctly, but they failed to put the information into 25 the database. So it's getting all of that baseline NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	and then being able to move forward. I just wanted to
2	make sure that that 50 percent was clear.
3	CHAIRMAN RYAN: So the 50 defect may not
4	be a source that's not under control, but one that's
5	not properly tracked in terms of its paperwork.
6	MS. BURGESS: Right.
7	CHAIRMAN RYAN: As well as one that may be
8	not controlled properly.
9	MS. BURGESS: Right.
10	CHAIRMAN RYAN: Okay. That's more
11	helpful.
12	MR. HARRIS: We've gone through
13	information outreach to notify generally-licensees
14	that if you have a source that fits into this category
15	you need to register in addition to following up on
16	old transfer reports. Again, I'd like to note that
17	it's not all generally-licensed devices that are
18	required to be registered, only certain ones that need
19	a certain threshold.
20	CHAIRMAN RYAN: That was going to be my
21	next question. Could you give us an idea of what the
22	spectrum of the sources that you are requiring to be
23	registered are? Is it thickness gauges above some
24	many curies of cobalt or what?
25	MR. HARRIS: You know it's in the
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regulations and I didn't write down the number. But
it's 31.5. Is that right? I can get that to Rich,
but it's millicurie amounts.
MS. BURGESS: They're millicurie of
ranges. I don't have the numbers offhand, but it's at
a 31.5. The goal was the gauges not the little tiny
things.
MR. HARRIS: Right.
MS. BURGESS: Not what, the 31.3. It was
more the 31.5 types.
CHAIRMAN RYAN: Okay.
MR. HARRIS: Which may not mean anything
to you unless you're
CHAIRMAN RYAN: Oh, it means a lot to me,
but I think it would be helpful for the other members
of the Committee to have a sense of we're talking
about tens of curies or millicuries and what the uses
are.
MR. HARRIS: Yes, I can get those
quantities to Rich.
CHAIRMAN RYAN: The instrument, level
gauges. There's a whole spectrum of kinds of things
that are generally-licensed just so we could get a
feel for that.
MR. HARRIS: Typically, they are fixed
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1	devices that measure thickness, density.
2	CHAIRMAN RYAN: Right. Flow rates. All
3	that kind of stuff.
4	MR. HARRIS: Material. Right.
5	CHAIRMAN RYAN: The reason I ask that
6	question is that some of those tend to be the ones
7	that show up in steel mills.
8	MR. HARRIS: Exactly.
9	CHAIRMAN RYAN: Steel mills of one sort or
10	another. So I just wonder about that correlation.
11	MR. HARRIS: Well again, there was a
12	number of initiatives that the Commission has
13	undertaken to make sure that when somebody, if we find
14	out who threw it in the steel mill, they get penalized
15	three times the disposal cost. Transferring something
16	to Barnwell is expensive. Three times that is
17	CHAIRMAN RYAN: Very expensive.
18	MR. HARRIS: very expensive.
19	CHAIRMAN RYAN: Okay. Thanks. Again,
20	that information will help in informing the Committee,
21	I think, in what the world is out there that are in
22	the generally-licensed area. If you could give us
23	some additional stuff as follow-up, that would be
24	great.
25	MR. HARRIS: Yes, I tried to put it in the
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1	context of the IA categories. They are mostly fours
2	and fives.
3	CHAIRMAN RYAN: Right.
4	MR. HARRIS: And I don't have that
5	information in front of me as far as that.
6	CHAIRMAN RYAN: That's fine. You can
7	follow up, but again that's the category what we have
8	in the world and the U.S. Now you said this is
9	generally-licensed under NRC. I wonder what agreement
10	states do.
11	MR. HARRIS: Well, the agreement states,
12	when NRC changed its regulations, they were required
13	to change their regulations in three years. Is that
14	right, Steve?
15	AUDIENCE MEMBER (STEVE): Yes, three
16	years.
17	MR. HARRIS: Yes, three years. Sorry.
18	The gentleman from Maryland.
19	CHAIRMAN RYAN: So it's actually getting
20	in line with this generally-licensing program.
21	MR. HARRIS: Right. So as far as I know,
22	a number of states have done that.
23	CHAIRMAN RYAN: Right.
24	MR. HARRIS: So they would have a parallel
25	type of system where they're going to track generally-
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1	licensed devices.
2	CHAIRMAN RYAN: Okay. Thanks.
3	MEMBER HINZE: Did I understand you to say
4	that you had no category one or two in your tracking
5	system?
6	MR. HARRIS: In the generally-licensed
7	devices?
8	MEMBER HINZE: Right.
9	MR. HARRIS: That's correct because what
10	a generally-licensed device is I as a manufacturer who
11	has a specific license manufacture a pipe flow gauge
12	and I can transfer it to you and you don't have to
13	have a license. You have a general license on a
14	specific license and you're as part of the transfer
15	required to do lead testing and other things.
16	MEMBER HINZE: That's helpful.
17	MR. HARRIS: The category one and two
18	sources are tracked by the National Source Tracking
19	System. Those are the significant ones.
20	MEMBER HINZE: Right.
21	MR. HARRIS: The generally-licensed
22	devices I think were important because there was no
23	specific license that tracked those.
24	CHAIRMAN RYAN: Bill, anything else?
25	MEMBER HINZE: That's it.
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1	CHAIRMAN RYAN: All right. Allen.
2	VICE CHAIR CROFF: Just to get some
3	perspective, about how many category one and two
4	sources are there?
5	MR. HARRIS: Do you know, Merri?
6	MS. HORN: Off the top of my head,
7	approximately about 6,000 in the database. That
8	numbers is a little low because you allow
9	CHAIRMAN RYAN: Would you mind using the
10	microphone so you get it on the record? Thanks.
11	MS. HORN: Yes. My name is Merri Horn.
12	I'm the NRC Project Manage for Source Tracking and
13	it's for the initial, for the interim database. There
14	are probably about 5,000, 6,000 sources category one
15	and two that were initially reported. That's a little
16	low because we allowed irradiator licensees to treat
17	the irradiator sources as a single source to ease the
18	reporting because it was a voluntary effort. The same
19	way with some of the medical facilities, for instance,
20	the gamma knife usually made up of 100, 150, sources,
21	we allowed them to treat it as one source. So the
22	category one sources will actually much higher.
23	When we actually get the National Source
24	Tracking System up and running, they will have to
25	report each individual source. But for this interim
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1	thing since it was a voluntary effort and we wanted
2	some information, we did allow them to do that. So
3	you're probably talking maybe 10,000 total once they
4	report completely.
5	VICE CHAIR CROFF: That's a lot of curies.
6	CHAIRMAN RYAN: That's kind of interesting
7	what you have. You have all the curies. You may just
8	have them aggregated in some way.
9	MS. HORN: Yes.
10	CHAIRMAN RYAN: Okay. That's helpful.
11	Ruth.
12	MEMBER WEINER: When a source is returned
13	to you for disposal, what do you do with it?
14	MR. HARRIS: I don't think we do anything
15	with it. I don't think anybody gives us any sources.
16	MEMBER WEINER: Oh.
17	MR. HARRIS: DOE recovers sources, but I
18	don't think the NRC.
19	MEMBER WEINER: So you depend on licensee
20	to take care of the disposal in some way.
21	MR. HARRIS: Correct. Or like I
22	mentioned, the CRCPD initiative where if you have a
23	source that's useful and you no longer want it, you
24	can post it on their website. They are facilitating
25	people that have unwanted sources with people that
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1	want sources.
2	MEMBER WEINER: Thank you.
3	DR. DEVINE: Excuse me. Tim?
4	MR. HARRIS: Yes.
5	DR. DEVINE: Terry Devine here. May I
6	point out that we don't identify sources on our
7	website. The website has an invitation to call me if
8	I might be able to help in finding an outlet or making
9	an introduction, but we don't list materials or
10	locations of them on our website.
11	MR. HARRIS: I stand corrected, Terry.
12	Thank you.
13	CHAIRMAN RYAN: Anyone else? I guess let
14	me just pursue that generally. I'm a general
15	licensee. I have flow meter. I decided I'm out of
16	the flow meter business. What do I do with the source
17	and maybe you can tell me what I used to do with my
18	source ten years ago and what I have to do now.
19	MR. HARRIS: I think you're still doing
20	the same thing. My generally-licensed devices are
21	returned back to the manufacturer.
22	CHAIRMAN RYAN: Okay.
23	MR. HARRIS: That's the terms of
24	conditions in most generally-licensed transfers which
25	is different from, say, a smoke detector which when
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1	you're done with it you can pitch it in your trash
2	can.
3	CHAIRMAN RYAN: Right. That's interesting
4	because Sears used to say, "Send it back to Sears" in
5	the early days. But I guess I just wonder if that is
6	a place in the system that needs attention.
7	MR. HARRIS: As far as getting rid of it?
8	CHAIRMAN RYAN: Well, some of these gauges
9	that have shown up in steel mills and that's not a
10	trivial number that have had impacts on steel mills
11	have been in service for a long time and ended up for
12	whatever reason getting scrapped with whatever was
13	being demolished and ended up in a steel mill. Now
14	steel mills have gotten real smart about that. They
15	have all these great plastic scintillator detectors on
16	the truck ramps coming in.
17	MR. HARRIS: Right.
18	CHAIRMAN RYAN: And they do a real good
19	job of identifying sources and/or voids in the load
20	and all kinds of stuff. But I just wonder if it makes
21	any sense to think about tighter controls on
22	disposition and I guess the penalty of three times the
23	cost to dispose it is really the bite that you now
24	have in place to address that.
25	MR. HARRIS: Right. I think once the
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1	Generally-licensed Tracking System gets a little
2	farther along, we'll get a better handle on what's
3	happening to sources. Certainly that ones that are
4	required to be tracked, we'll do that annually so
5	we'll know. If somebody stops reporting that they had
6	a source, we'll question what happened to it.
7	CHAIRMAN RYAN: Gotcha. That's
8	interesting. I think that's helpful because you'll
9	find out if a custodian either quit or retired and
10	there's a new person. It gives you a tickler to put
11	it on somebody else's radar screen rather than forget
12	about it perhaps.
13	MR. MAJOR: Just a quick one. How far
14	away do you think you are from a national tracking
15	system? A year of rule-making before you have it?
16	MR. HARRIS: For the bigger national
17	source tracking?
18	MR. MAJOR: Yes.
19	MR. HARRIS: I think the idea is that it
20	would be in place, it was in the slide
21	MS. HORN: The proposed rule-making will
22	be going out for public this next summer in 2005.
23	It's due to go up to the Commission sometime in the
24	spring. ACNW will probably see it for review and
25	comment like any other proposed rule I'm guessing in
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l	the January timeframe.
2	CHAIRMAN RYAN: Great. So real soon.
3	MS. HORN: In January.
4	MR. MAJOR: Not that's the rule-making,
5	but before the system itself gets there.
6	MS. HORN: The system itself we hope to
7	have it up and running, the initial implementation,
8	December 2006 and then full implementation in March
9	2007.
10	CHAIRMAN RYAN: And again, just to
11	recognize the voluntarily aspect of what you've done
12	here if I'm getting that right, you really feel like
13	you've accounted for 99.9 percent of the curies in
14	this category, too.
15	MR. HARRIS: That's the interim inventory.
16	MS. HORN: That's the interim.
17	MR. HARRIS: Which will continue until the
18	rule-making is in place and the National Source
19	Tracking System is up and running.
20	CHAIRMAN RYAN: The interim. Okay.
21	MS. HORN: The interim inventory was a
22	voluntary effort. They, the licensees, didn't have to
23	respond to it.
24	CHAIRMAN RYAN: But you said you got a
25	very, very high.
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1	MS. HORN: We got a very good because we
2	did a lot of follow-up effort and we did get a very
3	high response rate.
4	CHAIRMAN RYAN: Sure.
5	MS. HORN: The National Source Tracking
6	System will not be voluntary. It will be required.
7	CHAIRMAN RYAN: Oh, absolutely. I
8	understand that, but it's interesting. You have a
9	jumpstart on your knowledge base with the voluntary
10	program.
11	MS. HORN: Yes, and we'll use that for the
12	initial loading of the National Source Tracking
13	System.
14	CHAIRMAN RYAN: Sure.
15	MS. HORN: It will make licensees giving
16	us that initial inventory for that system a lot
17	easier.
18	CHAIRMAN RYAN: You should give
19	participants a waiver on their first year's fee.
20	(Laughter.)
21	MS. HORN: They would like that I'm sure.
22	CHAIRMAN RYAN: States wouldn't, but the
23	NCR licensees probably. But anyway, that's great. I
24	appreciate the presentation.
25	MR. HARRIS: Thank you.
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1	CHAIRMAN RYAN: Any other questions from
2	staff or members? Oh, yes. On the phone, any
3	questions or comments from Texas and/or Kentucky?
4	DR. DEVINE: No. Thank you.
5	CHAIRMAN RYAN: Do we have Texas online
6	yet?
7	(No response.)
8	CHAIRMAN RYAN: Okay. Well, on we go.
9	Next, we're scheduled to hear from
10	MR. HARRIS: Thank you.
11	CHAIRMAN RYAN: You're welcome. Thank
12	you. From Joel Grimm from the Department of Energy.
13	Joel, welcome and thanks for being with us.
14	MR. GRIMM: Thank you, Chairman Ryan. I'm
15	Joel Grimm from the Department of Energy. I'm a
16	Program Manager in the Global Radiological Threat
17	Reduction Program. Just by way of introduction, I'd
18	like to say that when I last addressed your Committee
19	three and a half years ago, this was the program I'd
20	overseen. It was seen as a waste management operation
21	at Los Alamos National Laboratory overseen by the
22	Albuquerque Operations Office. A lot of things have
23	changed since then especially in the last year.
24	The Radiological Threat Reduction Program
25	is now managed by DOE's National Nuclear Security
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Administration (NNSA) as part of the nonproliferation program. The mission is to reduce global threats posed by high-risk radioactive materials on a global basis mainly by identifying and securing materials in place and recovering and storing them where that's more appropriate and even disposing of them where that's possible.

There are some differences in how this . 8 9 mission is accomplished in the international sector 10 versus the domestic sector. I'll address some of those details in the next couple of slides. NNSA has 11 12 a number of program offices dealing with various 13 aspects of nuclear security in the country. The 14 nonproliferation program has a new program office 15 created last spring that deals with radiological threats. 16

The Global Radiological Threat Reduction 17 Program and the Global Nuclear Material Threat ' 18 19 Reduction Program handle two different aspects of 20 this. In NRC's lingo, the Global Radiological Threat 21 Reduction Program basically deals with byproduct materials whereas the Global Nuclear Material Program 22 deals with special nuclear material especially high-23 enriched uranium fuel at research reactors world-wide. 24 25 Within the Global Radiological Threat Reduction

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Program we have an international program office and the domestic. I will be concentrating today discussing the domestic program largely because I think that's what you're most interested in and it's the one that I am specifically involved with.

6 The Programs' efforts are truly global. 7 When this activity was started a little over three 8 years ago, the emphasis was on securing special 9 nuclear material and other radioactive materials associated with Russia and former the Soviet Union's 10 branched 11 weapons programs, but it has out significantly in those last couple of years to now 12 over 40 participating partner countries. Once again, 13 I'll be concentrating on the domestic effort today. 14

15 There are some differences between the strategic approaches of the two programs. First of 16 17 all, in the domestic program, we stress identifying, 18 recovering and securing excess and unwanted sealed 19 sources that could be used in radiological dispersal devices (RDDs). Now traditionally, our thresholds and 20 our attention in this area were related to excess and 21 unwanted materials that exceeded the low-level waste 22 23 classification for Class C waste, better known as Those thresholds and 24 greater-than-Class-C waste. 25 priorities have shifted somewhat in the aftermath of

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terrorists' attacks and again, I'll address some of those details in a few minutes.

3 In the international program, the emphasis 4 in partnership with other countries is onsite, 5 physical security upgrades and securing materials in 6 place. The United States does not recover and take 7 back materials from other countries except in rare and 8 case-specific examples. The emphasis is on security 9 in place especially for materials that are in use. 10 Consolidation of materials in secure facilities where they are not being used, it incorporates bilateral 11 cooperation with individual nations and also multi-12 lateral relationships involving partner countries and 13 14 the IAEA.

15 Historically, the domestic program has 16 been dealing with excess and unwanted sources for over 17 ten years now. Originally, this began in concert with the NRC and the states to deal with excess and 18 19 unwanted materials that were exceeding Class С 20 criteria on a case-by-case basis. This really only 21 dealt with a few sources and a few licensees a year 22 mainly because we didn't have the funding to do a more proactive effort. 23

24 Secondly, another reason was that through 25 the '90s more and more sealed sources that are

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1 qualified as greater-than-Class-C were becoming excess 2 and unwanted mainly on account of economic shifts in the country especially in oil and gas exploration 3 industry and the shifts from domestic exploration and . 4 production of oil to international overseas production 5 efforts. It was geared toward environment safety and 6 7 health concerns. That is to say accidental exposures of workers and the public to excessive and unwanted 8 materials. 9

We deal with identifying and recovering 10 excess sources and they are managed as greater-than-11 Class-C waste and stored that way once they're 12 recovered in route to a DOE facility. Given our new 13 national security emphasis and focus, we're expanding 14 beyond those greater-than-Class-C definitions by 15 including additional isotopes that normally wouldn't 16 considered greater-than-Class-C and also 17 by be 18 shifting thresholds for assessment and action.

Most recently, the program has been moved out of DOE's Environmental Program and into the NNSA nonproliferation program as I already said. This is allowing us to optimize and leverage the resources of DOE's National Security Mission by incorporating this with the International Radiological Threat Reduction effort.

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1 What have accomplished? Well, we especially 2 beginning in fiscal year 2001, the 3 programs' activities have resolved in removing over 4 10,000 radioactive sealed sources from the licensed sector and moving these materials into storage at DOE 5 6 facilities mainly Los Alamos National Laboratory. 7 Interagency coordination has been required for this. We have a formal MOU that Tim mentioned a few minutes 8 9 ago that addresses the roles and responsibilities of the NRC and the Department in this area. 10

11 The MOU is really only necessary where 12 specific emergent situations are developing. The DOE 13 program is mature enough and proactive enough that we conduct most of our sealed source recovery activities 14 without direct involvement and requests by the NRC. 15 However, there are situations where regulators whether 16 it's the NRC or the states become aware of situations 17 18 that require a higher prioritization and a more rapid 19 response.

Some of these examples include four large strontium-90 sources that we recovered from the Houston area just prior to the Super Bowl last winter. These were seen as at-risk materials in light of such a big national event. Another example was an emergency request from NRC to deal with a bankrupt

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licensee in Pennsylvania last spring, 1 abandoning 2 nearly 500 sources at their facility. This was the 3 first time we had dealt with any significant qualities of cesium and cobalt 4 sources by the way. 5 Traditionally, we'd been dealing with the greater-6 than-Class-C isotopes, largely actinides like 7 americium and plutonium.

8 We've also supported the Department of 9 Homeland Security and are working with the NRC and 10 others helping conduct radiological security pilot projects. This involved assessing the security status 11 of medical facilities in the New York City area prior 12 to, excuse me, New York and Boston, prior to the 13 14 political conventions this year and it also resulted 15 in us prioritizing recovery of 68 sources from 55 different sites in these cities during the summer 16 before the conventions commenced. 17

CHAIRMAN RYAN: Just a clarification. You 18 say "removed." Do you mean removed permanently? 19 That's correct. 20 MR. GRIMM: 21 CHAIRMAN RYAN: Okay. MR. GRIMM: These were excess and unwanted 22 materials that we packaged and removed to Los Alamos. 23 CHAIRMAN RYAN: Other sources may be of 24 25 similar type or size or under control or in use, they

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1	were okay.
2	MR. GRIMM: That's correct.
3	CHAIRMAN RYAN: All right. Thank you.
4	MR. GRIMM: To put a graphic emphasis on
5	this, this map portrays the most recent data managed
6	at Los Alamos regarding sources recovered. There are
7	several items of good news in this map. First is the
8	cumulative number of sources recovered. This goes up
9	on a weekly and monthly basis. The downside of that
10	cumulative number is now that we're over 10,000, it's
11	hard to make a big splash anymore. Hitting 100 here
12	or 500 there doesn't seem like that big of deal.
13	The other good aspect of this map is that
14	it demonstrates that large numbers of sources are
15	consolidated by the companies that make the sources or
16	the devices that use them. That's why you see
17	concentrations of numbers in specific states. The bad
18	news of course is that there remain excess and
19	unwanted sources scattered all over the country. By
20	the way, I'll show a map at the end of the
21	presentation about sources that are on our database
22	now still awaiting recovery.
23	These are some pictorial demonstrations of
24	the types of situations that DOE and its contractors
25	encounter across the country. The first picture is a
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1 well-logging truck abandoned by its owner at а 2 junkyard in Illinois during the 1990s. This is a 3 company that was trying to get rid of their materials, 4 had noticed pools of outlet, was trying responsibly to 5 deal with their material for quite some time and 6 finally gave up. The owner of the well-logging 7 company retired and moved out of the country and then 8 notified the government where his truck was with the 9 plates removed. The second example is just a backyard 10 in a rural lot in Oklahoma with pipes sunk down into the ground storing well-logging sources. Very little 11 12 monitoring. Very little security. The traditional scope of our domestic 13 program has involved both large and small americium 14 15 sources largely used in the oil and gas well-logging industry and used in portable and fixed gauges and 16 17 calibration sources. Plutonium-238 neutron sources 18 and heat sources, the heat sources were largely used 19 in cardiac pacemakers. 20 MR. BLAKE: I hope that's what that guy is holding. 21 22 MR. GRIMM: That's a pacemaker. That's right. We often times give our Los Alamos contractors 23 a hard time for giving us pictures of people holding 24 sources without a glove on, but we were assured that 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.neairgross.com

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1	was not a LANL employee's hand.
2	CHAIRMAN RYAN: It doesn't matter whose
3	hand it is. It's a hand.
4	MR. GRIMM: And then finally Plutonium-239
5	neutron sources which were an outgrowth of the Atomic
6	Energy Commission's Atoms for Peace loan/lease program
7	dating back to the 1950s. Over 2400 neutron sources
8	were distributed to colleges and universities through
9	the `50s and `60s for nuclear engineering research and
10	education programs. Those programs have been
11	abandoned going back quite a period of time and the
12	Department have been taking those sources back from
13	those loan/lease arrangements.
14	I mentioned a little while ago that both
15	our list of isotopes and our thresholds for
16	prioritization have changed given the new national
17	security emphasis of the program. This slide is
18	intended to provide some brief information about that.
19	Strontium-90 recoveries as I mentioned commenced in
20	2004. That top picture shows four strontium-90 RTGs
21	with about 60,000 curies of activities in them being
22	delivered into a storage shift at Los Alamos National
23	Laboratory.
24	One of our next big projects is removal of .
25	over 1,000 curies of cobalt-60. That's Department of
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115 1 Energy owned out of a research irradiator at the 2 University of Hawaii. I'm sorry. We already have 3 enough volunteers to go on that trip. 4 Finally, we're developing some contracts 5 with private sector companies to remove cesium-137 6 irradiators from high schools and colleges throughout 7 the United States. We have about 16 of these on our database. 8 9 Traditionally, firms that manufacture 10 cesium-137 sources or devices that use them have taken these irradiators off of licensees' hands, but their 11 12 asking price is pretty high and many people have seen 13 fit to sit on them hoping for a better deal and they 14 are about to get it from the Department of Energy. It 15 will be free. We're hoping to recycle the cesium with the same manufacturers, but it's yet to be seen 16 17 whether that will actually happen. 18 CHAIRMAN RYAN: How manv source 19 manufacturers are there in the United States of 20 significant size? Two or three or a dozen? 21 I suspect it's less than a MR. GRIMM: 22 I can only name three companies that sell dozen. 23 sources. Whether they actually manufacture them here 24 is a different matter. I believe one of the larger 25 neutron source manufacturing for the oil industry is NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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116 1 about to call it quits and go out of the business 2 largely because of the lack of the supply of americium 3 for new manufacturing. 4 This slide demonstrates radionuclides of 5 concern and thresholds for assessing security needs 6 and then definitively taking action. This is the 7 threshold list that was developed by our international program which we are adopting for the domestic 8 9 There are some similarities and some large program. 10 differences between these thresholds and the 11 traditional greater-than-Class-C thresholds. They 12 also don't necessarily compare well with the IAEA's categorizations and code of conduct. 13 CHAIRMAN RYAN: Just a word about that 14 concentration limited to Class C. 15 MR. GRIMM: Yes. 16 CHAIRMAN RYAN: That to me is a critical 17 18 point. I mean the concentration limit really doesn't assess the risk per se. 19 That's correct. 20 MR. GRIMM: CHAIRMAN RYAN: And of course risk is more 21 22 attuned to the quantity involved. So maybe you can expand on your thoughts there. 23 MR. GRIMM: Sure. 24 25 CHAIRMAN RYAN: Because I agree with you NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	and I understand why, but I'd like to help us talk a
2	little bit about that.
3	MR. GRIMM: I understand. Perhaps the
4	Waste Management staff here at NRC could address this
5	better than I, but my take on the greater-than-Class-C
6	limits is that they represent levels of activity in
7	waste that will remain dangerous in a shallow-land
8	burial facility beyond the 500-year performance period
9	of that disposal facility.
10	CHAIRMAN RYAN: Not quite. The classic
11	one that is based on the intruder scenario would be an
12	agricultural farmer growing stuff in Class C waste.
13	That's really what it boils down to.
14	MR. GRIMM: Okay.
15	CHAIRMAN RYAN: You know Class C waste can
16	be anything from strontium-99 eye applicator to a very
17	small amount of strontium-9 going up in the generators
18	we just talked about.
19	MR. GRIMM: Right.
20	CHAIRMAN RYAN: So there is this broad
21	range of activity level, but still Class C. In Class
22	C waste, there is no discerned dose rate up to 10,000
23	R per hour. So I'm not sure I see it as a an
24	excellent measure of the risk. In fact, I see it as
25	a poor measure of the risk.
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ı	MR. GRIMM: I understand.
2	CHAIRMAN RYAN: I mean I understand you
з	have grabbed on to that as an issue in part I guess
4	because DOE has an obligation to manage greater-than-
5	Class-C by the current law, but from the risk
6	perspective it doesn't get you there I don't think.
7	MR. GRIMM: I agree. These assessment and
8	action levels were developed by DOE's National
9	Laboratories based on an assumed radiological
10	dispersal device attack using various assumed
11	parameters including the amount of land area
12	contaminated the average dose rate to the public from
13	that event and then working backwards to sealed
14	sources sizes that would result in those parameters.
15	The reason that the top six are colored
16	white and the rest are yellow is because the top six
17	represent what is traditionally considered to be
18	greater-than-Class-C isotopes and the bottom four are
19	the new isotopes that are added to our list of
20	concerns under our national security emphasis. You'll
21	also see that the stark difference among the data are
22	that the actinides or the long-life alpha emitters
23	have considerably different action levels than the
24	beta-gamma emitters.
25	VICE CHAIR CROFF: You mentioned this,

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1	I'll call it, a scenario analysis or whatever. What
2	kind of a risk or a dose or something corresponds to
3	these action or assessment levels?
4	MR. GRIMM: Two rems per year.
5	VICE CHAIR CROFF: For which ones?
6	MR. GRIMM: For all of them based on EPA's
7	protective action guides for, I think, Phase II clean-
8	up and recovery actions. Two rems per year was seen
9	as the top dose in those protective action guides and
10	those are the data that were used to work backwards to
11	source sizes shown here.
12	VICE CHAIR CROFF: Okay. Thank you.
13	MR. GRIMM: I'd like to discuss briefly
14	the approach that we've taken as we went from a case-
15	by-case project to a proactive project dealing with
16	excess and unwanted sealed sources domestically. We
17	tried to recover sources that are registered with us
18	as quickly as possible. We work with the NRC NMSS
19	staff on developing methodologies to prioritize
20	recoveries. It's principally based upon the amount of
21	material at a facility and either perceived or known
22	security postures at those facilities.
23	Our contractors at Los Alamos have
24	developed and employed a number of new technologies.
25	The first is a special form overpack capsule that can
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1	be closed manually in the field without welding,
2	meaning you don't have to take welding equipment in a
3	hot cell with you when you're dealing with sealed
4	sources. We've also developed and certified for
5	transport, long-term storage and disposal at WIPP
6	assuming that that were to be an available outlet
7	someday multi-function drums, containers, that are
8	capable of providing long-term interim storage for
9	various types of sealed sources. The picture you see
10	here is drum called the S-100 which is specifically
11	designed and shielded for neutron sources. It uses
12	high density polyethylene shielding in the annulus of
13	the pipe component to provide the shielding.
14	We dispose of sources where possible. The
15	only clear path forward to disposal is for Plutonium-
16	239 because we manage it as defense transuranic waste
17	which has always been owned by the Department of
18	Energy even though it was out on loan/lease. We do
19	generate a small number of Plutonium-238 and americium
20	sources from the Defense sector, largely from the
21	naval reactors program. And finally, we integrate
22	these efforts with our new cohorts in the
23	international program. We are now looking at
24	developing a take-back policy for U.S. origin sources
25	in countries overseas.

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And finally to sum up to put this in 1 perspective for the coming year or two, this slide 2 demonstrates no matter how many sealed sources we 3 recover, there are always more on the database to get. 4 Our database has gone over 5,000 during some years. 5 Currently, our database is somewhere around 2200. Our 6 numbers of actinides are going down because that's 7 what we've actively been recovering since 2000. We've 8 been encouraging licensees with beta and 9 gamma emitters to register those on our database. 10

The way the registration works, they 11 12 contact our staff at Los Alamos. They can do it on They can do it online, register phone, by email. 13 points of contacts and types of materials they have. 14 It is entered into a database at LANL which is 15 It is not online. It is not shared with 16 secured. the 17 typically not even me and then we employ 18 methodology we worked with the staff at NMSS to 19 prioritize those recoveries.

We use subcontractors through Los Alamos to consolidate sources at commercial facilities, mainly at a firm in Houston because it's centrally located for the oil and gas industry. Then Los Alamos delivers the sources to DOE storage from those consolidators. The only routine situation where LANL

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122 1 packages the sources onsite themselves and moves them directly to a DOE facility is the Pu-239. Are there 2 3 any more questions? 4 CHAIRMAN RYAN: It's interesting to 5 compare your two maps. I was just looking at North 6 Carolina and Minnesota and Texas about the exchanges. 7 Maybe that coincides with the three manufacturers you 8 mentioned. 9 MR. GRIMM: Right. Minnesota and Florida 10 stick out on the recovered map because there were 11 firms there that made Pu-238 pacemakers and there are 12 virtually none of those left in the country except for those that are removed from patients when they get 13 more modern ones or when they pass away. 14 15 Obviously, the concentration in Texas is in account of the petroleum industry. 16 There is a 17 handful of large oil field service companies that 18 conduct their international well-logging operations 19 out of Houston and that's where they bring their excess sources back to. 20 As opposed to, 21 CHAIRMAN RYAN: say, 22 Oklahoma or some of the other oil states. That's correct. 23 MR. GRIMM: CHAIRMAN RYAN: And Louisiana is 24 obviously part of the Texas picture as well. 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	MR. GRIMM: That's correct.
2	CHAIRMAN RYAN: Interesting.
3	MR. GRIMM: Some of the other
4	concentrations of notably North Carolina is based upon
5	a single large portable gauge manufacturer.
6	CHAIRMAN RYAN: Interesting.
7	MR. GRIMM: Anything else?
8	CHAIRMAN RYAN: What is your biggest
9	challenge?
10	MR. GRIMM: Money. While the program was
11	seen by the Environmental Management Program DOE, it
12	was not seen as directly related to clean-up and
13	closure of DOE's major legacy facilities. So it got
14	dwindling attention as the last couple of years have
15	gone by. When we were adopted by NNSA a year ago, it
16	was pretty late in the fiscal year '05 budget cycle
17	and the best estimate at that time was \$5.6 million
18	required for the program. That's the number that stuck
19	in the `05 budget request from the White House and
20	that's what we got for `05. We are significantly
21	raising that budget request for `06 to over \$12
22	million largely to deal with the new infrastructure
23	that's going to be required to deal with new isotopes.
24	CHAIRMAN RYAN: Gotcha. Jim, questions?
25	Ruth.
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1	MEMBER WEINER: I'd like to return for a
2	moment to your slide the table of five radium amounts
3	of concerns on it.
4	MR. GRIMM: Yes.
5	MEMBER WEINER: And you said that the
6	action level that these were geared to a dose of two
7	rem per year.
8	MR. GRIMM: I believe that's correct.
9	MEMBER WEINER: Can you say what kind of
10	dispersion you're looking at and what kind of exposure .
11	time, any kind of detail? How do you get that two rem
12	per year and is this the remming dose or does this go
13	to the maximally-exposed individual or what?
14	MR. GRIMM: I'm going a little out of my
15	depth here, but I will attempt to answer this. I
16	believe that our consultants at the national labs had
17	many disagreements on how to approach this and they
18	went relatively non-conservative so that everybody
19	would agree. This is based upon an even distribution
20	of radioactive material over a 500 acre area from an
21	RDD.
22	The reason 500 acres was chosen was
23	because smaller areas, there were arguments during the
24	analysis how big an area was seen as a national
25	security impact. I think we all know that we could
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125 1 pick one or two acres to contaminate and have a 2 significant national security impact, but there was 3 argument over that small an area. 4 MEMBER WEINER: Do you know what kind of dispersion modeling, what modeling, they used to look 5 6 at that? 7 MR. GRIMM: I don't believe they used any 8 dispersion modeling at all. They assumed an even distribution over the area. 9 MEMBER WEINER: So they assumed that the 10 11 source, just to get this straight in my mind, was 12 evenly distributed over 500 acres. I believe that's correct. 13 MR. GRIMM: MEMBER WEINER: And then this was an 14 15 external dose to somebody who sat for a year or what? MR. GRIMM: I don't know exactly what the 16 exposure time was for individuals, but I think it was 17 18 assumed to be residents. 19 MEMBER WEINER: With no shielding? MR. GRIMM: No shielding. 20 CHAIRMAN RYAN: Ruth, I think we had heard 21 22 something about this previously and I guess my view of it is it's not a scenario that's designed to be an 23 accurate representation of any one person's dose. 24 25 It's a metric. NEAL R. GROSS

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1	MR. GRIMM: I believe that's correct.
2	CHAIRMAN RYAN: It gives you some kind of
3	a way to scale and rank on a relative basis what you
4	should pick up first and you've explained your program
5	to prioritize sources. Well, I think I would never
6	take away from that metric a dose. A dose is nothing
7	more than a benchmark on the wall. If it's here,
8	that's important to us. Now it's real important now.
9	If it's below, it's low in priority. Then you're done
10	in terms of your ranking. Is that a fair summary?
11	MR. GRIMM: I think so. I don't believe
12	that the, well, first of all, EPA's protective action
13	guides are not hard and fast about exactly what number
14	should be chosen for dose limitations during the
15	second phase of clean-up that is after the emergency
16	response evacuation.
17	CHAIRMAN RYAN: Through the recovery,
18	right.
19	MR. GRIMM: This is during the recovery
20	phase. I believe site and case-specific situations
21	can be taken into account on determining dose limits.
22	CHAIRMAN RYAN: You know I think to me the
23	key point is that if you look at the sources, let's
24	just take the beta emitters and alpha emitters, it
25	ends up with a resuspension inhalation model. If you
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1	look at the gamma emitters, it's a direct exposure.
2	It may be a little bit of inhalation and so forth. So
3	I don't know if you changed your parameters and your
4	scenario, you would come up with anything different in
5	terms of their ranking substantively. One may shift
6	with another one next to each other, but I guess I
7	want to agree with and recognize that the exercise is
8	not to calculate doses. It was to rank importance.
9	MEMBER WEINER: I wasn't criticizing. I
10	was simply trying to clarify in my own mind. I have
11	another question though. WIPP can take its defense
12	generated transuranic flights.
13	MR. GRIMM: Correct.
14	MEMBER WEINER: So is there any way to,
15	you mentioned it was disposal only for Plutonium-239.
16	MR. GRIMM: Correct.
17	MEMBER WEINER: Could you put the other
18	actinides in there or what is interfering with that
19	that they are not defense generated?
20	MR. GRIMM: The only thing that's
21	interfering right now is a programmatic presumption
22	that americium, Plutonium-238, other actinides and
23	transuranics in the licensed sector must be managed as
24	greater-than-Class-C waste. They are not DOE-true
25	waste and if they were DOE-true waste, would they be
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defense waste? Okay.

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2 I personally was responsible for shifting 3 our paradigm on the Pu-239. There was an operating 4 assumption that since licensees had those sources for 5 decades that they were greater-than-Class-C waste. I 6 challenged that and said, "No. DOE always owned them. 7 They are transuranic waste. It's not a coincidence 8 that they were manufactured from weapons-grade 9 plutonium from Savannah River" and I succeeded at 10 making an argument with the Environmental Management 11 Program and our general counsel that they should be 12 managed as defense-true waste.

Now one of my initiatives for the next 13 year is to take that same white paper and try the same 14 15 thing for our americium because I think most of us know that it's a decay product of plutonium in the 16 17 weapons production stream or in weapons components 18 themselves. The only difference between that and the 19 Pu-239 is that we separated purified and sold the americium in the commercial market. It's not DOE 20 21 owned, but that's the only difference. the So 22 question is when the government recovers those materials, which waste label do we put on it? I would 23 like to say "defense-true." 24

CHAIRMAN RYAN: Allen.

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1	VICE CHAIR CROFF: Talking about the
2	scenarios, is there a report or whatever where this
3	analysis is laid out?
4	MR. GRIMM: If there is, it's probably
5	classified.
6	VICE CHAIR CROFF: Okay. And the list of
7	radionuclides in your left column, how was that list
8	picked? Why are those there and others not there?
9	MR. GRIMM: This was picked by NNSA and
10	National Laboratory staff as isotopes of concerns that
11	would make effective radiological dispersal devices
12	and by "effective," we mean materials that would after
13	the emergency response deny access and open use of a
14	contaminated area. This isn't geared toward
15	radiological exposure or injuries during the RDD event
16	itself, but in the long-term exposures in the
17	aftermath.
18	VICE CHAIR CROFF: Okay. Thanks.
19	MEMBER HINZE: Briefly, Joel, I realize
20	you're just talking about sealed sources and that's
21	your domestic program, etc. and we're dealing here
22	with control and tracking of sealed sources, but what
23	about unsealed sources? I've had an occasion to have
24	chunks of carnotite land on my desk from former
25	friends. There are regulations in place, I believe,
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1	in some states that one cannot leave cores of uranium
2	ore laying on the ground. What's being done about
3	controlling unsealed sources?
4	MR. GRIMM: I'm not really sure I can
5	address your question. We have routinely only dealt
6	with sealed sources. I think most materials that are
7	used in unsealed form typically can be used and
8	disposed of at low-level waste facilities. They don't
9	exceed regulatory criteria that require the
10	government's intervention and action.
11	MEMBER HINZE: But they are not required
12	to go into a low-level waste storage.
13	MR. GRIMM: You're talking about NORM.
14	MEMBER HINZE: Yes, right.
15	MR. GRIMM: Or at least in part.
16	CHAIRMAN RYAN: We have an additional
17	comment from the staff.
18	MR. HARRIS: Yes. Tim Harris from the
19	NRC, just to put a perspective on NRC licensees, 10
20	CFR Part 20 requires licensees to control their
21	radioactive material. So the regulations require
22	control of all radioactive material. I think we're
23	talking today about sources and tracking sources.
24	Just because we're not tracking non
25	MEMBER HINZE: NORM, if you will.
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1	MR. HARRIS: Well, NORM is a different
2	issue. But not a sealed source, bulk material, the
3	regulations still require control of that material.
4	MR. GRIMM: Tim would an example be things
5	like brachytherapy seeds or are those all sealed?
6	MR. HARRIS: Those are sealed.
7	CHAIRMAN RYAN: They are little, but they
8	are sealed.
9	MR. HARRIS: Right, but brachytherapy
10	seeds we're not tracking. They don't meet the
11	threshold.
12	MR. GRIMM: Things like carnotite are not
13	regulated because they are naturally occurring
14	radioactive material.
15	MEMBER HINZE: Right.
16	MR. GRIMM: Not by NRC.
17	MEMBER HINZE: But don't put them on my
18	desk.
19	CHAIRMAN RYAN: Well, I think it's an
20	interesting area, but I just wonder as you point out
21	if maybe it doesn't meet the test of being a sealed
22	source concern at this point. I don't know. It's
23	interesting to think about.
24	MEMBER HINZE: Yes.
25	CHAIRMAN RYAN: Other questions.
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1	MR. GRIMM: Any interesting aspect of your
2	question is that as you can see from the bottom of the
3	chart we have radium on the list. Traditionally, the
4	government has not concerned itself very much with
5	radium.
6	CHAIRMAN RYAN: The Federal Government.
7	MR. GRIMM: The Federal Government.
8	CHAIRMAN RYAN: State governments concern
9	themselves with it all the time.
10	MR. GRIMM: This is a new thing for us and
11	believe it or not, we've taken so much americium off
12	the market that we now have sealed source
13	manufacturers asking if they have some of it back
14	because the DOE plants have stopped separating and
15	purifying americium. The supply of clean americium
16	for two new sources has dwindled considerably. We'd
17	like to say yes, but in a nonproliferation program,
18	it's difficult to start handing out the stuff that
19	you've been picking up.
20	MEMBER HINZE: Thanks, Joel.
21	MR. GRIMM: You're welcome.
22	CHAIRMAN RYAN: I guess I just speculate
23	that if you did recycle the material into some new and
24	improved source control program maybe that's the path
25	forward. Who knows.
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1	MR. GRIMM: Well, recycling excess and
2	unwanted material would be in compliance with the
3	NRC/DOE working group study on security of sealed
4	sources. It remains to be seen what the government's
5	role is in managing that recycling.
6	CHAIRMAN RYAN: But that's interesting.
7	That is part of the MOU.
8	MR. GRIMM: Another interesting aspect of
9	this is that the radioactive source market has become
10	global which means, I'll use a specific example. A
11	firm in California wants americium, but it's their
12	sister corporation in the Czech Republic that actually
13	manufactures the sources. So that means we have to
14	put our foot into the export/import market and all the
15	rules that regulate that. I personally fear that if
16	anything goes wrong in that arena, fingers are going
17	to point at us. So it bears some careful thought.
18	CHAIRMAN RYAN: Latif.
19	MR. HAMDAN: Joel, what is the status of
20	the generic EIS that DOE Department of Environmental
21	Management are preparing on dispose of greater-than-
22	Class-C waste?
23	MR. GRIMM: DOE's Environmental Management
24	Program committed to the Senate in a hearing, I think
25	it was in October, to begin a NEPA process for
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developing greater-than-Class-C waste disposal
 options. The Environmental Management Program Office
 is responsible for that and is preparing to issue an
 advanced notice of intent to start the scoping process
 for that.

I believe the advanced notice of intent is
scheduled to be issued this month or in January. The
purpose of the advanced notice is to provide a little
extra time for the public to identify important issues
before the actual public scoping process starts.

MR. HAMDAN: Joel, just a follow-up. Will the EIS cover only the commercial greater-than-Class-C waste or will it also include the greater-than-Class-C waste covered with the Department of Energy and Department of Defense also?

There was discussion on this 16 MR. GRIMM: 17 topic over a year ago and I believe there was a move 18 in DOE especially in the Environmental Safety and 19 Health Program to incorporate those other problematic 20 and no-disposition path type waste streams. I don't 21 know if EM is going to take that approach and include things like non-defense transuranic waste or if they 22 23 are strictly going to limit it to the license sector 24 of greater-than-Class-C.

CHAIRMAN RY

RYAN:

questions?

Other

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1	Comments? Joel, thanks very much. Very informative
2	presentation.
3	MR. GRIMM: You're welcome.
4	CHAIRMAN RYAN: You have a lot of work
5	behind you and a lot of work ahead of you.
6	MR. GRIMM: Good work.
7	CHAIRMAN RYAN: Thank you. Theron, why
8	don't I suggest we take maybe a ten minute break and
9	that way you can work on reestablishing the forum and
10	so forth before our Maryland presentation. We'll come
11	back in about ten minutes. Off the record.
12	(Whereupon, the foregoing matter went off
13	the record at 2:16 p.m. and went back on the record at
14	2:32 p.m.)
15	CHAIRMAN RYAN: Okay, if we could have
16	everybody's attention, please. We're now going to
17	hear from the Maryland Radiological Health Program,
18	Roland Fletcher, the Program Director. Is that
19	correct?
20	MR. FLETCHER: Program Manager.
21	CHAIRMAN RYAN: Program Manager, and
22	Raymond Manley from the Program also will be here to
23	talk. And, Roland, you're going to lead us off.
24	MR. FLETCHER: Yes.
25	CHAIRMAN RYAN: Welcome. Thank you.
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MR. FLETCHER: First of all, I'm very pleased to have this opportunity to speak before this committee and to present information that the CRCPD has been engaged in for some time, especially in the area CRCPD programs and radioactive materials control, recovery, and disposition.

7 Let me point out that this material that 8 I'm going to be using was provided primarily by Terry 9 Devine of the CRCPD, who we're trying to make contact 10 with so they can make sure that I say it right. And 11 it is based on experience, as I said, that CRCPD has 12 had with the states over some time.

13 I'm going to begin the presentation, but 14 at a point about midway, I'm going to turn it over to 15 Ray. I'm going to be covering the CRCPD aspects of 16 these programs. Ray is going to be talking about 17 Maryland's experience in the same area.

Let's talk first of all about the 18 I don't know how many of you know what conference. 19 the Conference of Radiation Program Directors is. 20 It's essentially an organization of state regulatory 21 22 programs advised by agencies of the federal government, including the NRC, EPA. And what we do is 23 together working groups based on the 24 we put 25 experiences of the staffs of these various programs,

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so that we can jointly develop consistent regulations, so that we can look at issues and concerns within the regulatory community, come up with position papers, resolutions that deal with those particular things.

We also kind of act as a clearinghouse for information. We exchange staff. You'd be surprised at how many people have gone from one state to another to participate in another staff based upon their experience in an opening that might appeal to them.

During the past four years, the CRCPD has worked with the NRC in their National Orphan Source Program to address the vital issue in this country.

Since 1987, CRCPD has invited custodians 13 discarded or otherwise unwanted radioactive 14 of materials call for assistance finding 15 to in affordable, legal solutions for the control of these 16 orphan sources. Thousands of these requests have been 17 18 satisfied by continually expanding а list of 19 alternatives. Radioactive materials were mostly produced over 30 years ago and have been long retired 20 In many cases, records from the materials 21 from use. have essentially been lost. We need to find an orphan 22 source, as we've been talking about, something with no 23 record, no trace, no identifiable characteristics, and 24 25 no ownership.

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5 The contract invites contact with people who wish to adopt these sources, someone who wants to 6 Over 7 take control, someone who has a use for them. the years we have been able to fill hundreds of these 8 Success of these projects can clearly be 9 requests. seen in the yearly request for Radium sources. These 10 sources are available - as indicated in the previous 11 Radium is one of the areas that is 12 speaker identified by many states where a lot of these sources 13 are found, and we find those who want to take control 14 of it. 15

Many of these activities are funded, in 16 part, by the NRC, and in previous years, by EPA and 17 18 DOE. In eight cases, funding was provided through the 19 CRCPD from the above sources for disposition of radioactive materials in agreement state programs. 20 Currently, four more of these projects are underway, 21 so the agreement states have taken full advantage of 22 the opportunity to get rid of some orphan or unwanted 23 And Ray is going to go into a lot more 24 sources. detail of what we've done in Maryland about that. 25

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1 What has been working? The adoption of RAM at no charge has accommodated tens of kilocuries 2 3 Cobalt-60, kilocuries of Cesium-137, and of approximately of Radium-226. Some 4 а gram manufacturers accept retired devices at affordable 5 prices for recycling or disposal. This process has 6 been successful with Tritium signs, Americium-241, 7 Radium-226 smoke detectors, certain Cesium-137 and 8 9 Cobalt-60 gauges, and virtually all Krypton-85 devices. 10

CRCPD appreciates the DOD Waste Office 11 acceptance of radioactive material devices, mostly 12 luminous devices, at no charge, and in a reasonable 13 time frame. The DOD Off-Site Recovery Program, OSRP, 14 the only significant outlet for Plutonium, 15 is Americium, and their Beryllium Neutron sources. They 16 have taken several kilograms of Plutonium and several 17 18 kilocuries of Americium, approximately 10,000 items, 19 since the program has been implemented.

OSRP is now expanding to consider Cesium-137, Strontium-90, Cobalt-60, Radium-226, may be considered for sources where burial as low level radioactive waste is excluded or would be prohibited due to expense. Sixteen Cesium-137 devices currently targeted for collection from high schools and colleges

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140 1 are in the 3.6 kilocurie range. Strontium-90 from 2 thermal electric generators is about one megacurie. What else works? Brokers who secure and 3 4 handle most of the orphan sources are generally 5 competitive in pricing, utilizing federal outlets and 6 manufacturer acceptance, and cooperate with each other 7 in fully utilizing waste packages. Brokers can be 8 contracted to recover a source or device in response 9 time between hours and several days. But we do have 10 some concerns. First of all, device distributors continue 11 12 Superfund sites. U.S. Radium to become in 13 Pennsylvania, two luminous dial firms in, 120 grams of 14 Radium devices at Radium Chemical Corporation, 15 examples of defunct and problematic. Atomic Energy Act material licensees include Golf Nuclear in Texas, 16 17 Neutron Products in Maryland, and Berthold Scientific 18 in Pennsylvania. With just tens of milligrams of Radium 19 contamination, entire buildings are disposed of under 20 21 low level waste criteria. Over a megacurie of Cobaltis in storage in defunct or otherwise closed 22 60 facilities with neither a commercial market, or an 23

affordable disposal option. And dozens of Lithium and 24 25 Beryllium Neutron sources with five to fifteen curies

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of Plutonium or Americium remain to be collected by OSRP. These are some of the concerns, some other concerns.

4 A dozen greater than 100 milligram Radium Beryllium devices remain in long term storage because 5 the disposal is either unaffordable or prohibited. 6 7 Expansion of DOE support has been slow. DOE financial support for the OSP program has been erratic. Limited 8 disposal of Plutonium-239 was halted in 2001. The 9 program was expanded in 2001 to include Plutonium-238, 10 Americium-241, and associated Beryllium Neutron 11 sources, but progress is slow. 12

Radium orphan sources are again in need of disposal. Four states have accumulated a few drums of Radium, Radium trash, mostly luminous items that will need disposal. Funding of approximately \$60,000 is needed. Between 1964 and 1982, EPA accepted 145 grams of Radium for disposal.

19 More concerns. Relief should be under current regulations regarding 20 considered disposal of short-lived medical patient waste, norm 21 22 scale, and Radium luminous dials. Agreement states, NRC, EPA, and DOE need to cooperate and organize a 23 more prompt and cost-effective deal with discovered 24 25 radioactive devices.

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1 examples of specific Here are some 2 Questions on responsibility of responding concern. 3 agencies to secure and dispose of a discarded or 4 discovered RAM. This has happened in several 5 instances where something happens, we become aware of 6 it, and there's an unidentified, unwanted source, and 7 it may not be in an agreement state, or it may have 8 been in an area where previous ownership was not 9 determined. And no one really wants to go out and say 10 I'll take it. I'll take it over. I'll take it under 11 control. Sometimes you have to come to difficult situations. 12 13 Two hundred twenty milligrams of Radium in

therapy devices found at landfills, most expensive alternative for evaluation and disposal. Sometimes we find it and the ebb and cry is let's get rid of it, let's do something. And rather than plan how to take charge or how to get rid of it, whatever works quick is usually pursued, and that's normally the most expensive.

Examples of concern. Forty milligrams of
Radium-226 was found in an unoccupied house.
Radioactive material remained at the site weeks later
while negotiations for disposition continued.

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In two cases, 70 millicuries of Strontium-

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1 2	90 and 70 millicuries of Cesium-137 were held several months by scrap dealers that reported finding them, while authorities arranged for disposition.
2	months by scrap dealers that reported finding them, while authorities arranged for disposition.
	while authorities arranged for disposition.
3	
4	An agreement state is currently struggling
5	for three months to dispose of 1.3 curies of Krypton-
6	85 gauge. The shutter was stuck open, and is still
7	being held by the manufacturer. The manufacturer has
8	agreed to the return of the device, funds are
9	available, but state attorneys are still holding the
10	matter under consideration.
11	Now we want to give you some perspectives
12	and experiences from the field, and I'm going to turn
13	this over to Ray, who's going to talk specifically
14	about things that have occurred in Maryland.
15	MR. MANLEY: Good afternoon. Thank you
16	for allowing me to speak with you today. I'd like to
17	start off by saying a little bit about accountability
18	in the State of Maryland. Where Maryland is going at
19	the moment, we are attempting to approve the
20	accountability of our generally licensed devices, so
21	I'd like to talk about that a little bit.
22	We have implemented a portion of the NRC
23	required regulation to improve the reportability from
24	manufacturers to Maryland so that we, along with the
25	NRC and other agreement states, will have better
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accountability as to final users for general license
 devices.

3 We are working to establish a general 4 license database through the registration of devices. 5 I will tell you that there is some polite discussion 6 right now between some agreement states and the NRC 7 regarding how to establish that general license 8 database. You heard earlier some discussions on 10 9 CFR Part 31.5, which outlines that criteria by which 10 is establishing the threshold for the NRC the 11 registration of general license devices.

12 Maryland and a number of other agreement states are considering whether we want to establish 13 the level of registration the same as the NRC. 14 Some 15 considerations in that, perhaps, is if you say we are only going to register such devices that are greater 16 than 10 millicuries of Cesium - well, does that mean 17 18 you don't want to register the 9 millicurie Cesium 19 sources?

20 If you are going to ramp-up a program like 21 we're going to do in Maryland, approximately 750 users 22 or 3,000 devices, approximately, for general 23 we would like to encompass a larger licensees, 24 proportion of our general licensed users in that registration process. 25

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I believe where the question is currently going is that the NRC regulation is a Compatibility-B, which means that it must be adopted verbatim by agreement states, and subsequently, that means that agreement states are prohibited from registering anybody else under the current NRC regulation.

7 Maryland is looking into evaluating its resources for the purposes of inspecting general 8 licensees to a greater degree. Currently, I believe 9 10 we have the same policy that the NRC has during their 11 inspection process where if we inspect a specific licensee and they have generally licensed items, we 12 will review those generally licensed items, or if . 13 there is an event that occurs, of course, we take a 14 15 look at inspecting a general license. But right now, if there is a user who is only using general license 16 devices, we're not getting out to do that, and we're 17 18 looking into that.

19 We have successfully or are currently trying to train our licensees and the general public 20 on all those factors involved with general license 21 22 distribution, and general license registration, and we been and are continuing to develop dood . 23 have coordination with local law enforcement. When you 24 25 have a recovery of a source, always it's very good to

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1	have a good relationship with those local responders
2	that are going out with you as a state agency to
3	establish control of a radioactive material.
4	Okay. Why are we interested in recovery
5	of radioactive material? Well, you never know who may
6	end up with a radioactive device. That particular
7	device, that gentleman, whoever he is, is holding is
8	a Nickel-63 ICAM. It's a generally licensed device
9	that's made in Maryland. And as we know, when you're
10	dealing with orphan sources, they're just so easy to
11	find out there in the waste train. They are just so
12	incredibly easy to find. And in the same sense,
13	they're always very easy to identify.
14	CHAIRMAN RYAN: Just out of curiosity,
15	what does that last one show?
16	MR. MANLEY: That is a Radium-226 source
17	that was found in ash. I believe that was found in a
18	situation in Pennsylvania.
19	Okay. A couple of things I want to talk
20	about that we've done, which we feel is important in
21	this recovery of lost sources. RHP does try to budget
22	money for disposal each year, but Maryland - and that
23	amount has been up to \$20,000 in the past for orphan
24	source disposal, but Maryland is in the same current
25	budget crunch as a number of other states, so that
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money is truly in jeopardy at the moment. But we try to keep money available for the purposes of disposal.

3 Another thing that we've done which we find very helpful is to have a place to take our 4 5 radioactive material when we've recovered it. To take 6 it out of the public domain, where do you take it? We 7 have an agreement with one of our licensees, the 8 University of Maryland at College Park. Here is an 9 example of one of the older signed agreements, but it 10 indicates this radioactive material is currently 11 present at College Park, and they say that Maryland has made a commitment to resolve and to dispose of 12 that material, but it really is necessary if you have 13 a program for emergency response to have a place to 14 15 take the radioactive material and get it out of the public domain. 16

17 radioactive Okav. When recover we 18 material, the first thing we try to do is return it to 19 the licensee. That works in a lot of cases. We also deal with bad luck, you're stuck, I guess is the way 20 to put it. If you acquire radioactive material and 21 22 you don't necessarily -- you are the last one to have 23 it, you may end up with the responsibility of the payment. And I think that's where the Orphan Source 24 Program from CRCPD comes in, try to help people in 25

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1	this category.
2	CHAIRMAN RYAN: Raymond, just a quick
3	question, if I could.
4	MR. MANLEY: Sure.
5	CHAIRMAN RYAN: When you say that if they
6	can't pay, do you go through some of the
7	administrative process to examine that, or how do you
8	figure out they can't pay?
9	MR. MANLEY: That goes through our legal
10	process, and the administrative evaluation. It can go
11	all the way through the Director of our
12	administration, down to Mr. Fletcher, and so forth.
13	It also, of course, is going to depend on what
14	options, if any, are available to dispose of the
15	material.
16	We have, on occasion, impounded
17	radioactive material from bad actors, bad licensees.
18	Sometimes that material ends up at College Park and
19	needs to be disposed of, and if you have radioactive
20	material that's both in the public domain with no
21	owner determined, we take that to College Park.
22	What do we currently have located at
23	College Park? We have an Alphatron ionization vacuum
24	gauge. I had a heck of a time just finding out what
25	an Alphatron ionization vacuum gauge was, and I was
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1 real happy to look it up on the sealed source and 2 device registry. And thought gee, I've really found 3 it, and there was just the first page of the device, no other information, not even the amount of activity 4 5 in the device. But it has approximately 500 6 microcuries of Radium-226. That's currently on our 7 list to get rid of. And there's a Radium-226 Marine 8 compass. We tried to get creative and have one of our 9 licensees take it off our hands who has a health 10 physics museum. That didn't quite pan out when he 11 realized and we told him that yes, he could take it off our hands, but yes, we would have to add it to a 12 13 specific license too, and he wasn't too pleased about 14 that. So as a result, it's still at College Park, but there's a picture of the device. 15

16 talk about our Let me most recent 17 experience with a recovery and disposition of several instance in 18 radioactive sources. There was an February '02 where we were notified in RHP of a 2 19 curie Cesium-137 source that was found in a steel 20 21 plant in Hartford, North Carolina. The owner of that 22 device was identified as a facility in Maryland, Jet Blast, also known as Essex Chemical. 23

24 RHP went out and conducted an 25 investigation of the scene. It indicated that that

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particular facility had had four of those devices installed in 1984. Two of the four devices were located at that facility at Fairfield Road. Interestingly enough, the management there didn't know they had them, but they were located at that facility.

That still left one that was unaccounted 6 7 for. RHP went out and educated a number of the waste dealers in the area to keep a lookout for the fourth 8 9 device, and it was found in the waste stream at United 10 Iron in Baltimore, Maryland. There was no damage to the recovered devices and no leakage. All four gauges 11 12 were transported to Radiation Services Organization, 13 who is a licensed waste broker, and they were stored 14 and charges were made for storage from RSO. And there's an indicator of the types of devices that we 15 They were four Texas Nuclear gauges. 16 found.

17 So did we ship them back to the 18 manufacturer? Well, no, because it turns out that Texas Nuclear wouldn't take them, so that's the first 19 20 thing. We did look into other options and it turned 21 out that there was a chance that Ohmart Vega would take them back, or do we have them disposed at an 22 23 approved disposal facility? Who's going to pay for all of this? Is it going to be paid for by RHP? 24 Is ' 25 it going to be paid for by Jet Blast, or are we going

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to use the CRCPD Orphan Source Program? So basically, we did use the CRCPD orphan material fund for this disposition.

4 We reviewed our options. Legal review, as you heard before, can be a problem. 5 The State of Maryland basically is taking liability for 6 the 7 disposition of this material, so there is a legal 8 review that's involved. There is a request that's put 9 forth to the CRCPD, an agreement signed, а confirmation of that agreement, the bidding process, 10 11 internal fiscal concerns.

Basically, even though money is coming from CRCPD to pay for this transaction, Maryland had to come up with a special budget amendment to procure the money up front, and that's not necessarily an easy thing to do within a state system. And then final disposition.

18 Here is an example of the request that 19 goes from the agreement state to CRCPD, and that request was put in September 20th, 2002. 20 It was for authority to accept reimbursement. 21 It had to go 22 through the legal review before this letter could be sent, and it indicates that Maryland will get the bids 23 and complete disposition of the radioactive material. 24 25 Then there's an agreement that is signed,

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1 the reimbursement agreement. Here is an example of 2 that. It has to confirm that the licensee or the individual with the radioactive material cannot pay, that the entity holding the radioactive material did 5 inadvertently, or the radioactive material is so abandoned with no owner. 6

7 It also indicates that the radioactive material must pose a potential threat, and that MDE 8 9 has the responsibility for the transaction. Also, it 10 indicates that MDE has the liability for conducting the actions involved with the disposition, and that 11 12 CRCPD has the responsibility of payment. And then there's a letter back from CRCPD where they commit to 13 14 provide funds for the disposition. That was on September 23rd, '02. 15

radioactive 16 And again, here is the 17 material that was necessary to be disposed of. RHP 18 went out and got bids for the transaction. They're 19 all basically close in nature but, obviously, when you're looking at these bids, it needs to be the 20 reasonable and best bid that's taken. In this case, 21 22 we chose the Radiation Service Organization bid, which 23 is their paperwork there. I'll go by that real quick. And then there is the confirmation of shipment once 24 25 the disposition has occurred.

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1 Lessons Learned, and I guess this is a 2 couple of comments by myself on Lessons Learned in putting together this small talk here. And that is 3 4 that yes, we have a history in Maryland of dealing with these type of orphan sources, and we do keep all 5 records, transmittals, the waste 6 shipment vital manifest. But what I found is that many subtleties of 7 8 those actions are easily lost. I have a feeling that 9 Maryland is going to be relearning its lessons over 10 and over again, so Lessons Learned we're attempting to 11 keep better quality of records.

Retirement of persons who maintain the historical perspective. If my former boss were here, Carl Trump, he would be able to probably talk for another hour and a half on each one of these instances, but he's not here any more, and now his perspective has been lost.

Careful documentation of all events, to 18 19 is really necessary. From а historical me, standpoint, in early 1989, Maryland did have a large 20 Radium shipment where there was a collection from a 21 22 number of licensees in Maryland. It was brokered by 23 the Radiation Service Organization. When it ended up going to U.S. Ecology, it was about 1,153 milligrams 24 And these are the licensees in Maryland 25 of Radium.

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that the Radium was collected from.

We did have a shipment in June of '97 of two Cobalt-60 sealed sources, which RHP paid that amount. And I guess I shouldn't admit this, but I went looking for where those two Cobalt-60 sealed sources came from and I couldn't find it in the records, so that sort of goes back to the Lessons Learned of keeping better notes at this point.

There was a shipment in March of '99 of 9 10 millicurie of Radium dials, and other one This shipment came about 11 miscellaneous sources. because before Maryland had an understanding with 12 College Park, we had to have someway of taking small 13 little sources out of the public domain, so they would 14 15 come back to our office and be stored in our safe under the appropriate controls, and labeling, and so 16 17 forth. But this shipment here was to get rid of those 18 sources that we were keeping in our office.

In April of '99, we transferred three curies of Americium-241 from a well logging device. Our department and Natural Resources had a well logging license but was decommissioned, and as a result, RHP ended up with that source and a need for disposal of it.

25

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And in January of 2000, we used the DOE

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1	Off-Site Source Recovery project to ship a moisture
2	density gauge to Los Alamos. And there's a picture of
3	the drumming and so forth that was involved. Do you
4	have any questions?
5	CHAIRMAN RYAN: Jim? Ruth?
6	DR. WEINBERG: I'd like to ask, if I adopt
7	an orphan source, what happens when I'm through with
8	it?
9	MR. FLETCHER: Once you adopt the source,
10	then you become the owner of that source. Then all of
11	the rules and regulations that apply to ownership go
12	into effect, so you would have to go through disposal.
13	CHAIRMAN RYAN: You can't borrow it, Ruth.
14	You've got to own it.
15	DR. WEINBERG: Got to own it. I can't be
16	a foster parent.
17	MR. MANLEY: Are you volunteering?
18	CHAIRMAN RYAN: I think that's why your
19	Radium dial clock wasn't adopted, because it was
20	permanent. Right?
21	DR. HINZE: A question that I'd like to
22	direct to Mr. Fletcher. One of your slides states in
23	one of the bullets, "The agreement states, NRC, EPA,
24	and DOE need to cooperate and organize for more
25	promptly and cost-effectively deal with discovered
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l	radioactive devices." Could you expand on that a
2	little bit, and what it's going to take to get that
з	cooperation, what type of cooperation are you looking
4	for and organization?
5	MR. FLETCHER: Well, I can expand on it a
6	little bit. I don't know if Terry ever got on the
7	line or not, but
8	CHAIRMAN RYAN: Terry, are you there?
9	Could you put the microphone over
10	MR. FLETCHER: I did actually hear him
11	respond, but it was so low. I can start.
12	CHAIRMAN RYAN: Please.
13	MR. FLETCHER: I mean, we are all aware of
14	the problem with these sources. I mean we need to be
15	discussing at various meetings, the CRCPD annual
16	meeting, the OAS meeting, but we seem to have
17	different perspectives on how do we feel about
18	processing. When we've had situations within
19	Maryland, we've had to work within Maryland's
20	regulations and with Maryland's procedures, and work
21	with the CRCPD to get that done.
22	There doesn't seem to be a uniform
23	procedure that everybody buys into, to address this.
24	And I guess we're just going to have to keep meeting -
25	-
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1 DR. HINZE: Is that even possible becau 2 of the varying state regulations and how they': 3 codified and so forth? 4 MR. FLETCHER: Well, I always thin 5 anything is possible. Probable is another question 6 And, particularly, when you talk about the naturally 7 occurring materials, which seem to pop up in many of 8 the conversations regarding these orphan sources 9 because NRC regulations don't really deal with those 10 things, so bringing them into the discussion is 11 little more difficult. 12 CHAIRMAN RYAN: Latif. 13 MR. HAMDAN: Maryland is an agreement 14 state, right? 15 MR. FLETCHER: That's correct. 16 MR. HAMDAN: So from what we heard thing 17 morning, if you are an agreement state, then you 18 should have your own regulations. 19 MR. FLETCHER: We do. 20 MR. HAMDAN: So if you have your ow 21 regulations, and you implement them, it's all the 22 State of Maryland, it seems to me. 23 MR. FLETCHER: Well, t		157	
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1 you're talking about the disposal of these sources, 2 you're talking about a few disposal locations. And 3 a lot of the disposal brokers work in many different states, some of them NRC states, some of the agreement 4 5 states. And I think what that particular comment was 6 geared to was to try to get something in common so 7 that the brokers, for example, can follow the same 8 procedures state-to-state.

9 CHAIRMAN RYAN: Latif, I think one of the 10 things we heard this morning - we did hear from Paul 11 Lohaus, the Agreement State Program, and he commented 12 how effective CRCPD is across the board, suggested 13 state regulations, this program and others, so I know 14 as a past chairperson of the conference that you 15 appreciate that that's recognized.

I think you've touched on a point you just made that there's AEA material and non-AEA material. I've heard over the years from many state program participants that say Radium, is Radium, is Radium. I don't care where it starts or who regulates it, we have to deal with it at the state level.

I recall Mike Mobley's slide of radioactive material is the box he regulates, and then he shows the federal slide which has a bunch of different boxes, and who does what, for whom, so

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1	there's that aspect to it.
2	I think it's important to recognize it's
3	not so simple, but is there a theme? And I think
4	that's your question, is there a theme?
5	MR. HAMDAN: That's right.
6	CHAIRMAN RYAN: And I guess the theme is
7	you always manage the material correctly. You may not
8	be able to sort it out in terms of where it's going to
9	go, or where it's going to be disposed, but public
10	health and safety is the theme, I think. At least
11	that's my perception. Tell me if I'm wrong, or if I'm
12	right, tell me how I'm right.
13	MR. MANLEY: I believe you're right. I
14	would like to mention three points that my staff
15	brought up, that I'd like to mention for your
16	consideration. These may have been brought up
17	previously. We've only been here for this afternoon.
18	And I've even had members of the public ask me this
19	question.
20	If you want accountability of sealed
21	sources, why can't there be insulations of GPS or low
22	jack systems in radioactive material devices to assure
23	accountability of devices. I've had the question that
24	- and for your consideration - should legislation be
25	enacted to make manufacturers more accountable for
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radioactive material.

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2 We had an example right there where Texas 3 Nuclear refused to take the device back. There's 4 nothing that makes them take it back. Just, again, 5 for consideration. And should legislative action be 6 enacted to prevent storage of unusable radioactive 7 material for extended periods of time? I'll just 8 leave you with those three. Any other questions? 9 CHAIRMAN RYAN: Actually, the middle one 10 was one that was in our October, 2002 letter to the

11 Commissioners, saying that consideration should be 12 given to the use of geopositioning technologies to 13 facilitate tracking of significant sources, so we're 14 on the same page with that one. It had much the same 15 ideas on tracking.

I think it will be interesting to see as the staff brings forward their draft in January. Maybe that's a focal point for all of us to revisit, what the next steps seem to be shaping up to be. Yes, Latif.

MR. HAMDAN: Yes. I just have one other 21 22 question. The Maryland experience, is it any 23 different than other states, or is it typical of what goes on with sealed sources in other states? Do you 24 25 know?

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1	MR. FLETCHER: Well, there's very few
2	agreement states, so the experiences are a lot
3	different from state to state depending upon the kind
4	of licensees they have. I think we're pretty active
5	in working with the CRCPD. I don't know how many
6	other states there are, but I think the number that we
7	had in the presentation were like 8 to 12, perhaps.
8	So of the 33, I know that 8 to 12 have worked with
9	CRCPD in this program. And I still don't know if
10	Terry can comment, but that's the experience I know
11	about. But different states have different licensees,
12	different kinds of licensees; and, therefore, they
13	encounter different problems.
14	CHAIRMAN RYAN: Terry, are you there?
15	
16	DR. DEVINE: Yes.
17	CHAIRMAN RYAN: We can barely hear you.
18	We're going to try and fix that. Hang on just a
19	second. Our audio capability has been challenged this
20	afternoon.
21	DR. DEVINE: Many of the things that turn
22	up
23	CHAIRMAN RYAN: If you could be quiet,
24	maybe we could hear, please.
25	DR. DEVINE: to be dealt with are 30 to
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50 years old, and not only is the owner untraceable, but manufacturers defunct. And I think that happens with a good many of the things that turn up.

The problems in dealing with these 4 materials very often is in the first response to 5 6 assess the situation and decide what's to be done. 7 And that, a you just said, varies enormously from one I think with byproduct materials, 8 state to another. the 9 procedures better established, the are alternatives are in place, and it works better. But 10 11 particularly with NARM and with Radium, at an incident scene, a report of a find, there might be four or five 12 agencies with some degree of authority over the 13 matter, that have to rush out and try to push the 14 responsibility onto one of the others. 15

institutionalized a have grave 16 They concern not to take possession of materials, and I 17 think that's rather sad because well, with Radium -18 19 now we have some outlet, and Roland mentioned a case a while ago of 220 some milligrams of Radium. Radium 20 therapy devices are typically just 40 milligrams. And 21 22 that case was five or six of these devices in a little And they all passed the responsibility back to 23 box. the person who was good enough to report it, who was 24 quite prompt in getting a broker onto the scene within 25

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|| hours who took it away.

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I didn't hear about the case for more than a year, I guess, and would have had an outlet at no charge for them, just the cost of inspection, packaging, and transportation. I think there's a problem with developing these procedures and getting them in place among all these different agencies.

Another case that Roland mentioned about 8 9 bracchytherapy, Radium being found in a home that was 10 unoccupied. And it did remain there for some weeks. There's an interesting nuance of that - I heard a few 11 12 days ago an anecdote that well, this pretty little wooden box, very attractive little box, 50 years old 13 14 had been left there in the home. The realtor decided 15 that he'd have an open house and invite 200 people in 16 to see the property, so there I think is a risk that 17 fortunately nobody noticed that pretty little box and carried it off. And it was there some time later for 18 But clearly, we need to work on 19 a broker to take. 20 these procedures of getting things secured, changing 21 the attitudes and the policies towards that.

We will find disposition affordable. You do need to fill a few gaps in that, and the Off-Site Recovery Program is doing marvelous work to expand, but there's much work to be done.

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1	CHAIRMAN RYAN: Terry or folks from
2	Maryland, could you help us understand a little bit
3	more about discreet Radium sources? I guess, I don't
4	really have a firm grasp on how they were licensed and
5	distributed in the very early period, say the post-war.
6	period when they were much more popular in radiation
7	therapy and so on. Did doctors own them individually,
8	or how were they controlled and accounted for?
9	MR. FLETCHER: I think Terry was trying to
10	address that.
11	DR. DEVINE: I don't think they were. The
12	professional associations established some guidelines
13	and training on safety and use of the things, but I
14	don't think they predate the State Radiation
15	Control Act.
16	CHAIRMAN RYAN: Oh, sure. And I guess
17	
18	MR. FLETCHER: And I think
19	CHAIRMAN RYAN: Go ahead.
20	MR. FLETCHER: I can only guess. A lot of
21	the regulatory controls of these devices was a lot
22	more cavalier. I mean, they weren't perceived, in my
23	estimation, as having the level of potential harm that
24	we now know they actually do, so I remember watches
25	with Radium dials, cars, compasses, and because they
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1 glowed in the dark, people just thought they were 2 great, and now we know better. But as you said, in 3 the 40s and 50s, and I'm sure even in the medical 4 community, there wasn't that awareness. So some 5 instances with some of the Radium paint facilities 6 were starting to be revealed, but there still wasn't 7 that realization of what the total harm of these things could be. 8 9 CHAIRMAN RYAN: Well, I think one of the 10 things you pointed out, Roland, in your slides was an 11 example - I forget the number - but a small number of 12 milligrams resulted in demolition of a complete building because of contamination. 13 14 MR. FLETCHER: Right: 15 CHAIRMAN RYAN: So I think that aspect of source -- now we've all heard stories about bank 16 17 vaults or safety deposit boxes where a source has been 18 found leaking, or things of that sort that become 19 remediation problems. 20 MR. FLETCHER: Projects, yes. 21 CHAIRMAN RYAN: Is studying remediation 22 projects of that type a way to get at sources, what's been lost on a control? Is there information to mine 23 It would be interesting to see if you could 24 there? 25 cast every remediation that's been a recovery effort NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1 of some sort in the way you just described that one 2 building - X milligrams of Radium result in the 3 demolition of one building, and so on across a broad 4 spectrum of those kind of projects. It would be see what that picture like 5 interesting to was X number of hundreds of thousands of nationwide. 6 dollars was expended by a state and contractors to 7 clean up a safety deposit vault or something. 8

9 MR. FLETCHER: Well, I mean, you could 10 take it even further. Think about the tons of dirt 11 that scraped up when contamination is found to be 12 above what it should be in certain areas. You're also 13 talking about tons of soil that are removed from 14 areas.

15

CHAIRMAN RYAN: Sure. Interesting.

may, what DR. HINZE: If Ι you 16 - apparently have a good relationship with Maryland and 17 18 they will store your recovered items for some 19 temporary period. I think the terminology was. Do they charge for this, or is this just out of goodwill? 20 How is this handled in other states where there may 21 22 not be as a benevolent university.

23 MR. MANLEY: Well, I hope -- we have a 24 good relationship with the Radiation Safety Office, 25 and I hope the word of the word "free" doesn't get

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1	back to them, or we're liable to lose that. But yes,
2	it has been free of charge.
3	MR. FLETCHER: We try not to ask the
4	question.
5	DR. HINZE: I understand. Do you know
6	what transpires in other states? Do your colleagues -
7	- do you discuss this at all?
8	MR. FLETCHER: It's very isolated. I
9	mean, a few of the states do use their state
10	university. I mean, the University of Maryland and
11	the State Department of Environment, we essentially
12	have the same boss. We're both state government
13	facilities. That helps to facilitate doing this, and
14	I would venture to say that there are other states who
15	run into this problem who do the same thing. I think
16	Iowa might be a good example, but I couldn't itemize
17	it for you. I just don't know.
18	DR. HINZE: Well, that was your third
19	question, I think, regarding storage.
20	CHAIRMAN RYAN: Again, as a matter of
21	perspective, could you tell us in the spectrum of
22	programs in state, is Maryland a big program, medium,
23	small?
24	MR. FLETCHER: I think we're either
25	MR. MANLEY: We're sixth or seventh.
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1	MR. FLETCHER: Yes.
2	CHAIRMAN RYAN: In size.
3	MR. MANLEY: In size, total number of
4	licensees.
5	MR. FLETCHER: We have about 600
6	licensees.
7	CHAIRMAN RYAN: So you're one of the
8	bigger programs, the top ten in the country then. So
9	your experience probably is across the spectrum of
10	what other states might see.
11	MR. MANLEY: I think experience, again,
12	has varied depending on what types of use and
13	companies are specifically located.
14	CHAIRMAN RYAN: Sure.
15	MR. FLETCHER: Our experience has been, we
16	have a lot of certain licensees - like gauge uses, et
17	cetera - some of the midwestern states have a lot of
18	Uranium mill tailings or industrial radiography
19	facilities and things. The concentrations vary. We
20	have a lot of medical licensees and a few other states
21	have a lot of medical licensees, but other states have
22	fewer, but they have a lot more radiographers. So the
23	kind of licensing will vary.
24	MR. MANLEY: Right. We have a large
25	number of research licensees just because being
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1	located near Rockville and Gaithersburg, so a large
2	percentage are non-sealed sources, but are unsealed.
3	CHAIRMAN RYAN: Thank you. Terry, did you
4	have any other comments?
5	DR. DEVINE: On that question about the
6	other states, I would say that four or five states
7	have programs of taking in whatever turns up, and
8	eventually paying for the disposal. Several other
9	states have the arrangement that Maryland has with a
10	state facility to take it in, and eventually dispose
11	of it with their own waste.
12	A good many states have no program of that
13	type. They tell the operator of a facility, scrapper
14	trash facility, obtain appropriate container, chain it
15	to the building and store it and see if it decays. If
16	it doesn't, you'll have arrange disposal or something.
17	Now this is becoming a very widespread practice since
18	the pressure to install radiation detectors at
19	landfills. And we had probably ten cases a day or
20	more of alarm trips and radioactivity found in
21	municipal waste. And in almost every case, it is
22	short-lived, and does decay, and that storage
23	hopefully is a good idea. But in the case that it's
24	long-lived, then we have some problems that it's just
25	being left there on the site in need of attention.

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1	And again, back to the Radium - it's a
2	therapy device. We heard about the acute fatal
3	injuries in other countries from tunnel therapy
4	devices, Cobalt and Cesium, but with Radium, the
5	device is about the size of a pack of matches or maybe
6	a kitchen match itself, so that can easily be carried
7	off or lost, broken. And it's not a good idea to have
8	those at just some local facility in a lock box, but
9	in many states that's the usage.
10	CHAIRMAN RYAN: Has the conference
11	produced a report on this by any chance, Terry?
12	DR. DEVINE: Oh, I think there's been some
13	articles in our newsletter over the years.
14	CHAIRMAN RYAN: If there's any of those
15	that are more recent, of recent vintage that kind of
16	summarize the conference's experience as a whole,
17	those would be helpful for us to have. If you could
18	maybe think about that and get back to us
19	DR. DEVINE: Yes, I will.
20	CHAIRMAN RYAN: with some summaries,
21	that would be very informative for us.
22	I've learned that Robert Free is not going
23	to be available on the phone link today,
24	unfortunately. He's been called away for other
25	activity, so the next item on our agenda is kind of a
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general discussion. I guess the question is where do we go from here? So maybe I'd thrown that open to any and all participants, including our Maryland State folks, or our other speakers from NRC staff, or DOE. 5 Any thoughts?

This is Joel from DOE. 6 MR. GRIMM: One 7 thing we've tried to impress upon our new management 8 at NNSA, whether you're talking about permanent safety 9 or permanent security related to sources, disposal is 10 Typically, the National Security programs security. don't want to be saddled with disposal projects, and 11 12 rightly so, but not having the disposition path, a 13 permanent disposition path is a major stumbling block to proper management of sealed sources. 14

15 That's an interesting CHAIRMAN RYAN: perspective. Do you have any thoughts on how to break 16 17 that conundrum?

18 MR. GRIMM: Well, thankfully DOE's 19 Environmental Management Program was officially named the Owning Program Office for the greater than Class 20 21 E problem. I don't think there has ever been a formal When the Low Level Waste 22 designation like that. 23 Policy Amendments Act was issued in 1986, it was 24 signed in January of '86, the only real requirement was for DOE to write a report. And the report was 25

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1	written and there's been very little discussion of it
2	since, so I think it's a good step forward.
3	CHAIRMAN RYAN: That's a long way from
4	actually having disposal
5	MR. GRIMM: It goes without saying that
6	writing an Environmental Impact Statement, a generic
7	Environmental Impact Statement for a disposal facility
8	is one thing. Getting it sited, approved, and built
9	is another. It's not a foregone conclusion that we're
10	talking about a new pristine site. Existing
11	facilities could be included in the EIS.
12	CHAIRMAN RYAN: Well, that's interesting
13	to think about the fact that the source term is an
14	inventory of curies on probably a top ten list that
15	you showed us on your slide, and that's a fairly
16	straightforward thing to make some assessment about.
17	MR. GRIMM: The inventories are not large.
18	The 10,000 sources we recovered are in 600 drums at
19	Los Alamos.
20	CHAIRMAN RYAN: Interesting. So that
21	might be the eye of the needle, is the disposal outlet
22	has to bring closure to the problem, rather than
23	ongoing management.
24	MR. GRIMM: I believe that's correct.
25	CHAIRMAN RYAN: Okay. Would you guys
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1	agree with that from your state perspective?
2	MR. FLETCHER: I think so.
З	CHAIRMAN RYAN: It would be interesting if
4	that was available directly to states, that it didn't
5	have to go through a more complex collection step by
6	some intermediate program that's underway now, but if
7	there was a direct okay, yes - package it this way,
8	that one can go to disposal, or it can go to a broker
9	to accumulate for disposal, and on we go.
10	MR. CROFF: I have a clarification.
11	CHAIRMAN RYAN: Yes.
12	MR. CROFF: Which of the waste that you
13	collect don't you have a disposal outlet for?
14	MR. GRIMM: Nearly all of it. Most of the
15	sealed sources we recover are managed as greater than
16	Class C waste generated by the licensed sector. They
17	cannot be disposed of at DOE-owned facilities.
18	MR. CROFF: Ahh, that's what I missed.
19	CHAIRMAN RYAN: I think the one exception
20	that Joel highlighted was the Plutonium-239 at WIPP.
21	MR. GRIMM: There is one other exception,
22	depending on the origin of the material. We've now
23	disposed of three Strontium-90 RTGs, one at NTS, and
24	one at Hanford. They came from DOE operations, but
25	the precedent is established that large Strontium-90
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1	sources can be disposed of at DOE facilities.
2	CHAIRMAN RYAN: It's interesting.
3	MR. GRIMM: They're just like greater-
4	than-Class-C RTGs.
5	CHAIRMAN RYAN: Well, I think one of the
6	problems that we face is that regulating it based on
7	its origin doesn't make as much sense as regulating it
8	based on the risk and the radioactive materials
9	involved.
10	MR. GRIMM: Regulating it by what it is.
11	CHAIRMAN RYAN: Right, instead of where it
12	came from.
13	MR. FLETCHER: I wanted to echo something
14	that Ray had talked about earlier; that is, it seems
15	like everything we use these days has a code. You can
16	be sitting in New York and you can find out where a
17	cell phone is being used in California. Why can't we
18	do the same thing with these materials? I mean, it
19	seems to me that if you want to preclude them being
20	lost or just being discarded, you have some form of
21	recovery where you not only know where the material
22	is, but you know who had it last, who it belongs to,
23	and who needs to pay for its disposal. I think that
24	would really clear up a lot.
25	CHAIRMAN RYAN: I think in the forward-
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1 looking direction for new sources, or new uses, or new owners, that certainly seems to make a lot of sense, 2 3 and is consistent with our past recommendation in 4 October of '02. And, of course, you'd do that, I 5 think, for the significant sources. You may not want to do that for every generally licensed device under 6 7 the sun, but certainly significant sources you could 8 reconsider that option. As I understand it from the NRC staff, 9 10 we're going to hear in January - we'll see the proposed rulemaking on this, so again, that's a focal 11 point, to me, for us to all reconvene on and see where 12 that's going. That will be interesting to see. 13 14 MR. HAMDAN: Mike, I have a question. 15 CHAIRMAN RYAN: Yes. Please. Joel, clarify this for me. 16 MR. HAMDAN: 17 Are you saying that DOE is or is not responsible for 18 disposal of commercial generated greater-than-Class C 19 waste, which includes some sealed sources? Is DOE responsible for maintaining its disposal site or not? 20 MR. GRIMM: 21 Yes. 22 MR. HAMDAN: Okay. Specifically, from Public Law 23 MR. GRIMM: 99-240, which says "DOE is responsible to provide" -24 25 that's the verb that's used. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701

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1	MR. HAMDAN: Right.
2	MR. GRIMM: "Disposal for waste exceeding
3	Class C criteria."
4	CHAIRMAN RYAN: And there's no specificity
5	on buy it, generate it, new site, old site, existing
6	site. All those options are out there, because it
7	wasn't specified beyond provide.
8	MR. GRIMM: That's correct. Another
9	option is for the private sector to speculate,
10	speculatively design and get a contract and a license
11	for a disposal facility on their own. It's been
12	suggested, but it hasn't gone anywhere, largely
13	because of the up front commitment of funds required.
14	DR. WEINBERG: I have another question for
15	Mr. Fletcher, and this comes off of the Maryland
16	program that has the University of Maryland taking
17	orphan sources. Would it be possible for CRCPD to
18	basically monitor a recycling program? There are a
19	number of educational institutions that can really use
20	sources, small, medium-size sources. And certainly,
21	paying for both the source and its disposal costs more
22	than just paying for the disposal. I've just been
23	through this.
24	And it seems to me that - this doesn't
25	address the disposal question - but it seems to me
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1 that you could have a recycling program for some of 2 these sources, especially for educational 3 institutions. Has that been considered? I'm sure 4 that's what the University of Maryland does with them.

Well, CRCPD through Terry 5 MR. MANLEY: Devine, has -- as you talked before, if you want a 6 7 source, you can obtain it that way, if it's out there and it's an orphan source. The sources at the 8 9 University of Maryland are not ones that can be used as check sources and that type of items. 10 We dispose of a number of nuclear gauges, for instance, soil test 11 been defunct, and other 12 qauqe that has long radioactive material that I don't believe would 13 necessarily be of any use even in a museum capacity. 14

CHAIRMAN RYAN: And the bar is raised too. 15 As I think Brian pointed out, if you adopt a source, 16 17 you're the parent. I mean, you have to agree then to 18 take on the obligation for ultimate disposal, and I think my own experience with universities or schools 19 first to find out what the rate is going to be for 20 ultimate disposal - the shine kind of goes away from 21 that star, and then they don't think about it much any 22 more, because it is a very expensive proposition, or 23 at least at its initial blush, expensive to what they 24 25 thought they were going to have for free.

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MR. MANLEY: For a while, we actually sent a number of our items out to Dr. Paul Frame and ORAU at Oak Ridge, but eventually he said no more. I have enough. He said one more Revigator and I'm going to have a real problem.

6 Sealed source and greater-MR. HAMDAN: 7 than-Class C waste is really different than let's say 8 high-level waste or low-level waste because there 9 you're talking about large volumes of waste. And 10 here, the last projection I saw on the commercial 11 greater-than-Class C waste, 2,000 cubic meters 12 projected in 2055. So you would think with such a small inventory, somebody would jump on this, since 13 14 it's such a problem for many states, and there are thousands of sources. Do you think this would go to 15 16 the front burner and frankly, DOE would express a 17 solution to it. So what is --

18 MR. GRIMM: I can't speak historically. I 19 can only surmise that part of the problem with 20 addressing greater-than-Class C waste, even though the 21 responsibility was established in the law in 1986, 22 this problem wasn't present at any single DOE 23 facility; so, therefore, there was no specific program office in DOE that had the incentive to solve the 24 25 problem until there was an official designation made

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1 by the Secretary this year.

When you talk about waste projections, the 2 only serious studies that were done for this were in 3 the report to Congress in 1987, and then by Idaho 4 National Engineering Lab in 1994. And they made some 5 assumptions and some statistical analyses that I think 6 7 we would question today, especially when you look at volume projections for sealed sources. They were just 8 9 considering the sealed sources themselves, they weren't considering packaging, and shielding, 10 and drums like that. It was a minuscule number, a cubic 11 meter, two cubic meters, something like that. 12

But there was another projection that 13 talked about other greater-than-Class C waste, which 14 is activated metals from power plants. 15 It's much I think those are likely to be remote 16 different. 17 handled wastes. I think that's one of the reasons 18 that the utility companies were looking at entombment 19 in place as their decommissioning method a couple of years ago. I don't know where that went. And dealing 20 with that material is going to be a lot different than 21 22 dealing with sealed sources.

23 CHAIRMAN RYAN: I was going to say one 24 thing. I think Joel is on the right track to segment 25 the question, because irradiated hardware is 10,000 R

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per hour in his Class C routinely disposed stellite balls on their own on greater-than-Class C because of the Nickel content that are in pools now, and in sealed sources at a whole different spectrum.

5 And again, I think to me, one thing to 6 keep in mind, again, is that the concentration doesn't 7 determine the risk. It's not the concentration, it's 8 the amount. Strontium-90 eye applicators used by 9 ophthamalogists calculate to be greater than Class C 10 waste, but they're a trivial amount of Strontium. The way they're disposed is you average over the package 11 12 in which it is disposed, and then that concentration 13 basis is less than Class C, so there's a lot of 14 details about how you calculate a concentration, 15 whether it's the source itself, the source and the capsule, the source, and the capsule, and the steel 16 17 container, or the drum. And how you look at that is 18 how you determine the classification often, so there's a lot of detail that goes into that. 19

Again, from our perspective, I think just looking globally about it, the amount is what determines the risk, not the concentration. The flaw in a concentration-based system is it's easy to apply over the middle range. But at the very dilute end, like dilute concentrations in bulk soil, it sort of

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1	falls apart. And at the very concentrated end, which
2	are these very small, discreet sealed sources, a very
3	small mass but very high activity, it may not seem to
4	make the same logical sense. So tell me if I'm right,
5	or does that make sense? And I think maybe the
6	question is that the disposal strategy for these
7	highly concentrated discreet sources shouldn't be the
8	same disposal strategy that you think about for Class
9	A, B, and C waste in that middle of the range. I
10	don't know. I just throw that out for comment.
11	MR. GRIMM: The proposals that have been
12	drafted up for dealing with long-lived sealed sources
13	disposal would employ intermediate-depth borehole
14	technology, as opposed to a geological repository.
15	Your point touches on another dilemma,
16	though; and that is, just because a waste stream
17	classes out as Class C doesn't mean the disposal
18	facility will take it. I think the upper limit for
19	Cesium, for example, at Barnwell is about 30 curies in
20	a drum. If you just use simple division using the
21	Class C limit in 10 CFR 61, the definition for Cesium
22	Class C waste is 3,500 curies per cubic meter. That
23	means about 700 curies in a drum, so there's a huge
24	gap between 30 and 700.
25	CHAIRMAN RYAN: Of course, then there's

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1	the operational side of it.
2	MR. GRIMM: Right.
3	CHAIRMAN RYAN: What do you handle in an
4	operational setting from a radiation protection
5	standpoint for worker's point of view. And that gets
6	into the equation, as well.
7	MR. GRIMM: Correct.
8	MR. CROFF: I'd like to first, I found
9	the background provided by the many speakers very
10	interesting. I want to agree with what you said
11	before, in the sense that I don't think this issue for
12	the ACNW is quite ripe for a letter or further action
13	pending, as you said - one, the draft rulemaking,
14	seeing what it says, and what the staff proposes to
15	do. Number two, I think very closely related to it is
16	going to be this greater-than-Class C disposal issue.
17	What does the department propose to do as an outlet?
18	I think the NRC can do a lot of things on
19	tracking, but when they go to okay, we'll get orphan
20	sources back. What are we going to do with them?
21	Again, a lot of it is going to go to this greater-
22	than-Class C outlet, and we don't even know what
23	they're going to propose yet, so all this wraps around
24	and becomes part of one rather knotty package.
25	And at the risk of complicating some
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1	things even further, we're talking about looking a
2	little bit at Part 61, and there's some relationship
3	with Class C disposal potentially in there. It's not
4	a done deal. And even on the where issue, if you go
5	back and look what Congress has done, they're
6	basically talking about allowing disposal of greater-
7	than-Class C waste on-site on a case-by-case basis
8	again. And that is going to raise considerations of
9	what do you allow to be disposed on-site in the near
10	surface, and what are the criteria under which you
11	allow that? How much do you have to do to allow such
12	a thing?
13	CHAIRMAN RYAN: And I think the nexus of
14	all that is this question of quantity versus
15	concentration.
16	MR. CROFF: Yes.
17	CHAIRMAN RYAN: So I think that's
18	MR. CROFF: And sorting through that.
19	CHAIRMAN RYAN: At all levels. Now again,
20	we recall this morning that the classification system
21	was based on an intruder probability of one, 100 years
22	post closure at a low-level waste site into the
23	highest concentration waste. That was the limiting
24	case that set the Class C limits. Why is Strontium-90
25	allowed to be at a higher level than Cesium-137 in a
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Class C? Strontium-90, we've all been taught, is the most restrictive radionuclide in a fission product world.

4 Well, the reason is because the accidental dose rate in the intruder scenario drove the dose 5 6 higher than intake of Strontium by internal exposure. 7 So if you want to go back to the root of it, how that scenario is constructed, is important to understand, 8 9 to really understand what the implications are when 10 you say greater-than-Class C. Again, it's tied into this difference between a concentration-based limit ad 11 12 a quantity limit in terms of what defines the risk in 13 what setting. Ruth.

DR. WEINBERG: Joel mentioned borehole 14 disposal and I thought Joel might be interested - the 15 Egyptian government is looking -- that really has only 16 sealed sources to dispose of, is looking at borehole 17 18 disposal in the desert as a disposal option. And 19 that's being quite extensively studied now, and I would think that DOE would be interested in that. 20

21 MR. GRIMM: The IAEA is also working on a 22 generic safety assessment for intermediate-depth 23 borehole disposal. They had a consultancy - no, it 24 was a technical meeting on that at the beginning of 25 November.

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1	DR. HINZE: Well, I've heard all this, but
2	I still go back to a concern that I have about this
3	temporary storage. It leads to inefficiencies, and
4	inefficiencies can lead - not to Maryland, of course -
5	but can lead to cavalier approaches to the problem.
6	And I think that there's a disconnect with what we're
7	expecting out of the agreement states arrangement.
8	CHAIRMAN RYAN: Terry, you're on the phone
9	and have been quiet. Can we call on you for any
10	closing comments?
11	DR. DEVINE: Do I? No. Thank you,
12	though.
13	CHAIRMAN RYAN: Okay. Well, we appreciate
14	your participation, as we do all the speakers from the
15	staff and DOE, and from Maryland representing a robust
16	and important agreement state. And I think we're
17	well-informed to kind of see the draft regulations
18	that get proposed by the staff in January, and we'll
19	be back in touch.
20	Any other closing comments or questions?
21	DR. WEINBERG: Thank you.
22	CHAIRMAN RYAN: Okay. Well, thanks again,
23	and we'll close our session on that happy note.
24	Thanks again very much. We appreciate your time and
25	participation.
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CERTIFICATE

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

Name of Proceeding: Advisory Committee on

n/a

Nuclear Waste

156th Meeting

Docket Number:

Location: Rockville, MD

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.

Inco

Rebecca Davis Official Reporter Neal R. Gross & Co., Inc.

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SEALED SOURCE MANAGEMENT ISSUES: NRC PERSPECTIVES

December 14, 2004 Division of Industrial Medical Nuclear Safety





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Sealed Source Management

- Mandates for Controlling Sources
- Initiatives to Control Sources
- Efforts to Recover Orphaned Sources



Mandates for Controlling Sources

- NRC Mission to Protect Public Health and Safety
- NRC Mission to Promote the Common Defense and Security
- IAEA Code of Conduct



Initiatives to Control Sources

- DOE's Offsite Source Recovery Program
- Lost Source Enforcement Policy
- Proposed Rule on Portable Gauges
- National Source Tracking System
- General License Tracking System



National Source Tracking System -Background

- Current regulations do not require tracking of sources
- No central database existed for high-risk sources
- US Government has made a non-legally binding commitment to the Code of Conduct
- NRC commitment to Congress to develop a tracking system



National Source Tracking – Interim Inventory

- NRC and Agreement States licensees contacted (approx 2600)
- Limited to IAEA Category 1 and 2 sources
- Aggregation considered some Category 3 sources
- Inventory informed Security advisories and Additional Security Measures (ASM) Orders

National Source Tracking – Proposed Rulemaking

- Licensees will be required to report
 - Creation of new sources
 - Transfer to another licensee
 - Receipt of sources
 - Endpoint of sources
- Licensees will be required to verify source inventory

General License Tracking System

- Increased tracking and licensing awareness
- Regulations require registration and notification of transfer for certain sources

Efforts to Recover Orphaned Sources

- Memorandum of Understanding with DOE on Management of Sources (June 1999)
- Guiding Principle in Staff Requirements Memorandum (April 1998)
- CRCPD National Orphan Radioactive Material Disposition Program (2001)
- Trilateral Initiative with US / Mexico / Canada (2002)



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Radionuclide	Action Level (Ci)	Assessment Level (Ci)
Americium-241	10	1
Cesium-137	1,000	100
Curium-244	10	1
Plutonium-238	10	1
Strontium-90	1,000	100
Plutonium-239	10	1
Californium-252	10	1
Cobalt-60	1,000	100
Iridium-192	1,000	100
Radium-226	100	10







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• OSRP IS NOW EXPANDING TO CONSIDER CS-137, SR-90, CO-60. RA-226 MAY BE CONSIDERED FOR BOURCES WHERE BURIAL AS LLRW IS EXCLUDED OR WOULD BE PROHIBITED EXPENSIVE (CS-137 DEVICES CURRENTLY TARGETED FOR COLLECTION FROM HIGH SCHOOLS AND COLLEGES AMOUNT TO 3.6 KCL. SR-90 FROM THERMOELECTRIC GENERATORS IS ABOUT 1 MEGA CURIE.





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CRCPD GONCERNS

- A DOZEN >100 MG RA AND RABE DEVICES RIMAIN IN LONG TERM STORAGE BECAUSE DISPOSAL IS EITHER WAAFFORDABLE OR PROHIBITED.
- EXPANSION OF DOE SUPPORT HAS BEEN SLOW. DOE FINANCIAL SUPPORT FOR THE OSRP PROGRAM HAS BEEN ERRATIC. LIMITED DISPOSAL OF PU-239 HALITED UNTIL 2001. PROGRAM EXPANDED IN 2001 TO INCLUDE PU-338, AM241 AND ASSOCIATED BE NEUTRON BOURCES BUT PROGRESS IS SLOW.
- RADIUM ORPHAN BOURCES ARE AGAIN IN NEED OF DISPOSAL. FOUR STATES HAVE ACCUMULATED A FEW DRUMS OF RADIUM TRASH (MOSTLY LUMINOUS ITEMS) THATA WILL NEED DISPOSAL FUNDING OF APPROXIMATELY \$60,000. OF NOTE, BETWEEN 1964-1982 EPA ACCEPTED 145 GRAMS OF RADIUM FOR DISPOSAL.

CRCPD CONCERNS

- Relief should be considered, under current regulations, recarbing disposal of short-liver medical patient waste, norm scale and radium luminous dials.
- AGREEMENT STATES, NRC, EPA, AND DOE NEED TO COOPERATE AND ORGANIZE TO MORE MORE PROMPTLY AND COST EFFECTIVELY DEAL WITH DISCOVERED RADIOACTIVE DEVICES.







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RECOVERY

 BAD LUCK YOUR STUCK OWNER IS REQUIRED TO PAY FOR DISPOSAL(IF CAN NOT WE TAKE TO COLLEGE PARK)

IMPOUNDED FROM LICENSEE (BAD ACTOR) (TO COLLEGE PARK)

 IN PUBLIC DOMAIN NO OWNER DETERMINED (TAKE TO COLLEGE PARK)

RETURN TO LICENSEE

RHP BUDGETSMONEY FOR DISPOSAL

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DISPOSITION

- SHIPMENT BACK TO MANUFACTURER?
- SHIPMENT TO OHMART VEGA.?

- DISPOSAL AT APPROVED DISPOSAL FACILITY?
- PAYMENT OF SERVICES BY RHP?
- PAYMENT OF SERVICES BY JET BLAST?
- USE OF THE CRCPD ORPHAN SOURCE PROGRAM?





FINAL DISPOSITION











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