

ORIGINAL

**UNITED STATES OF AMERICA**  
**NUCLEAR REGULATORY COMMISSION**

**Title:            BRIEFING ON MATERIAL CONTROL OF**  
**GENERALLY LICENSED DEVICES**  
**PUBLIC MEETING**

**Location:        Rockville, Maryland**

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1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING ON MATERIAL CONTROL OF  
5 GENERALLY LICENSED DEVICES

6 \*\*\*

7 PUBLIC MEETING

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9  
10 Nuclear Regulatory Commission  
11 Commission Hearing Room  
12 11555 Rockville Pike  
13 Rockville, Maryland

14  
15 Wednesday, January 21, 1998  
16

17 The Commission met in open session, pursuant to  
18 notice, at 2:05 P.m., the Honorable SHIRLEY A. JACKSON,  
19 Chairman of the Commission, presiding.  
20

21 COMMISSIONERS PRESENT:

22 SHIRLEY A. JACKSON, Chairman of the Commission  
23 GRETA J. DICUS, Member of the Commission  
24 NILS J. DIAZ, Member of the Commission  
25 EDWARD MCGAFFIGAN, JR., Member of the Commission

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1 STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

2 ANDREW G. SHARLEY, III, AISI

3 JAMES F. COLLINS, SMA

4 JILL LIPOTI, CRCPD

5 ROLAND FLETCHER, OAS

6 CARL PAPERIELLO, DIRECTOR, NMSS

7 DONALD COOL, DIRECTOR, DIMNS

8 JOHN LUBINSKY, CO-CHAIR, NMSS

9 FRANK CONGEL, AEOD

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

[2:05 p.m.]

CHAIRMAN JACKSON: Good afternoon. The Commission has requested that this briefing be provided to assist the Commission in its review of the staff's proposal for improving NRC's control over and licensees' accountability for generally licensed and specifically licensed devices.

To provide for additional points of view on this issue, the Commission, in addition to our own staff, has also requested that representatives be invited of the steel and metal manufacturing and recycling industry, and present today are Andrew Sharkey, president and CEO of the American Iron and Steel Institute; James F. Collins, president of the Steel Manufacturers Association; and Michael Mattia, director of risk management for the Institute of Scrap Recycling Industries, Inc.

In addition, in the role of fellow regulators who must deal with this issue, the Commission has requested input from Chairman Jill Lipoti of the Conference of Radiation Control Program Directors, and Chair-Elect Roland Fletcher of the Organization of Agreement States.

So welcome to all of you, and I thank all of you for taking the time to address the Commission today.

So unless my fellow Commissioners have any opening comments they would like to share, I always assume the one

1 sitting in the center would like to make the opening  
2 remarks, and therefore Mr. Sharkey, would you please begin  
3 and then we'll go down.

4 MR. SHARKEY: Good afternoon and thank you for  
5 this opportunity to appear before you today.

6 My name is Andrew G. Sharkey III. I'm the  
7 president and CEO of the American Iron and Steel Institute,  
8 a non-profit trade association whose 49 member companies  
9 account for approximately 70 percent of the raw steel  
10 production in the United States.

11 I'm here today to present AISI's view on the NRC  
12 staff's recommendation for improving the Commission's  
13 control over and licensee's accountability for radioactive  
14 devices, and I might add I'm here also to send a very strong  
15 message that this is not a problem for just one segment of  
16 the steel-producing industry, it impacts all steel  
17 producers.

18 This is an important issue for AISI because its  
19 member companies operate basic oxygen furnaces and electric  
20 arc furnaces in which scrap metal is melded. When NRC  
21 control over and licensee accountability for radioactive  
22 devices are inadequate, as they have been in the past, too  
23 many of these devices wind up in the recyclable scrap  
24 stream. They can then make their way to steel mills and  
25 other metal smelting and recovery operations where, if not



1 detected, then may be placed in the furnaces and melted.

2 Through a combination of prudent actions and good  
3 fortune, large integrated steel mills have avoided a  
4 radioactive melt thus far, but they clearly remain at risk.

5 Others have been less fortunate. From 1983  
6 through June of 1996, there were 40 confirmed meltings of,  
7 radioactive sources, 25 of these occurring in the United  
8 States. During that same period, there were almost 1900  
9 discoveries of radioactivity and scrap metal.

10 I might add, spending the better part of the day  
11 yesterday with one of our companies that's a member of both  
12 our organizations, they showed me documentation of eleven  
13 alarms between March 4th and December 20th of last year.  
14 Two involved drivers who had recently undergone medical  
15 tests. Three were determined to be NORM, and six were  
16 determined to be contaminated material, principally oil and  
17 gas pipe.

18 So the problem clearly is both real and serious  
19 and it needs to be addressed effectively and expeditiously.

20 The consequences of such an incident can be very  
21 severe. At many mills, the cost of decontamination disposal  
22 and shutdown losses have reached \$23 million in a single  
23 incident, with the average cost falling in the range of \$8  
24 million to \$10 million.

25 The cost of dealing with a radioactive melt at a

1 large integrated steel mill is estimated to run as high as  
2 \$100 million or more because of the scope of the facilities.  
3 These estimates do not include the consequences of exposures  
4 that potentially may occur whenever devices are lost,  
5 abandoned or otherwise enter the public domain.

6 In its report of July 2nd, 1996, the NRC Agreement  
7 State Working Group outlined what we believe is the proper  
8 course of action to deal with this important issue. The  
9 working group recommendations called for enhanced regulatory  
10 oversight of general and specific licensees possessing  
11 devices exceeding designated activity thresholds; increased  
12 responsibilities and obligations for licensees and device  
13 vendors; significant penalties for lost devices; and a  
14 program for handling and disposing of orphaned devices.

15 In its present recommendation, the NRC staff  
16 claims to agree with the working group's analysis of the  
17 problem and for the most part with its proposed solution.  
18 Toward that end, the staff proposes to develop and implement  
19 a registration program for general licensees of devices  
20 containing at least ten millicurie of Cesium-137.

21 While we applaud the staff's determination to  
22 proceed down this path, we do have several concerns about  
23 its proposal.

24 First, we think the registration program should  
25 not be limited to general licensees of devices containing



1 Cesium-137. Coverage under the program should depend on the  
2 activity level of the device, not on the licensee's status.

3 All licensees of devices that exceed the  
4 designated thresholds should be included in the program as  
5 well. Moreover, the program should not be limited to  
6 devices containing Cesium-137. Those devices are important  
7 and they should be covered, but other isotopes, particularly  
8 Cobalt-60, have been involved in melting incidents as well  
9 and have entered the public domain.

10 The working group went through a very deliberate  
11 exercise of identifying the particular isotopes and  
12 associated activity levels that warrant increased regulatory  
13 oversight and accountability. While the staff agrees with  
14 the working group's assessment, it proposes a much more  
15 limited program due to resource constraints.

16 Given the severe consequences of a loss of  
17 accountability, we support the working group's  
18 recommendation regarding the scope of the coverage, and we  
19 believe it should be possible to secure the necessary  
20 resources.

21 For example, if the registration program is funded  
22 through fees imposed on licensees, as the staff recommends,  
23 the expanded coverage will result in additional funds -- in  
24 additional fees to fund the program.

25 As licensees, AISI member companies would not

1 object to paying reasonable fees -- for example, five to ten  
2 dollars per source, not to exceed \$500 per license -- if  
3 they are used for this purpose, and we are also willing to  
4 ask members of Congress to provide the NRC with additional  
5 funds needed to accomplish this important goal.

6 Second, we are concerned about how the program  
7 proposed by the staff will be structured. The core  
8 requirement would be annual registration by covered  
9 licensees. Under one regulatory option, there would be  
10 follow-up by the Commission in cases where the licensee  
11 fails to register or cannot account for the device. Under  
12 another option, there would be no such follow-up.

13 The possibility that the Commission might adopt  
14 this second option is troubling. While it is useful to  
15 identify devices that cannot be accounted for, that alone is  
16 not sufficient. The Commission also must attempt to find  
17 out why the devices cannot be accounted for to determine  
18 their fate.

19 As the working group emphasized, an active role by  
20 the Commission in comparing annual inventories and transfer  
21 reports and resolving any discrepancies is a critical  
22 component of an effective oversight and accountability  
23 program.

24 While an active follow-up role will add to the  
25 cost of the program, we believe these costs can be funded



1 through additional fees or penalties levied on those  
2 licensees whose shortcomings make the follow-up action  
3 necessary. This approach would be consistent with current  
4 NRC practice.

5 Third, various aspects of the program recommended  
6 by the working group, including responsibilities of  
7 licensees and device vendors, are not explicitly addressed  
8 in the staff's recommendation. This does not necessarily  
9 mean that the staff has rejected these aspects of the  
10 working group recommendation. The staff may simply view  
11 these as details to be developed as part of the rulemaking  
12 proposal.

13 We hope this is the case because these elements of  
14 the working group recommendation, such as obligations of  
15 vendors to report transfers of devices, to provide proper  
16 disposal information to customers, and to ensure that the  
17 device is being transferred, carry a clearly visible and  
18 durable identification and warning label, are an important  
19 complement to a registration system.

20 Fourth, we are concerned about scheduling. Under  
21 its plan, the staff would forward a proposed rulemaking  
22 package to the Commission in October 1998 and a final rule  
23 in October 1999. That means the final rule would not be  
24 promulgated until the year 2000 and the registration program  
25 would not take effect until the year 2001 at the earliest.

1           Given the importance of the problem and the  
2       working group's estimate that an average of 1.5 radioactive  
3       melts occur each year, we believe the staff should  
4       accelerate the rulemaking.

5           Since most of the spade work has already been done  
6       by the working group, it should be possible to publish a  
7       proposed rule this summer and to issue a final rule in the  
8       summer of 1999 so that the implementation of the  
9       registration program could begin by January 1 of the year  
10      2000.

11          Finally, we are concerned about what appears to be  
12      a lack of sufficient urgency in the staff's approach to  
13      dealing with the problem of orphaned devices. While the  
14      universe of orphaned devices will shrink progressively once  
15      a registration system is implemented, such devices are a  
16      significant concern today and will remain so for the  
17      immediate future.

18          Under the current system, a person who finds  
19      himself in possession of an orphaned device is an innocent  
20      victim of inadequate oversight who may nevertheless be  
21      saddled with very substantial costs for handling and  
22      disposing of radioactive material.

23          This really creates a disincentive for non-  
24      licensees to screen for radioactive devices and an incentive  
25      for them to simply pass the device on to others without

1 notification when they are found.

2 From the standpoint of accountability and public  
3 health, this is a perverse incentive structure. It should  
4 be reversed as soon as possible.

5 Non-licensees must be encouraged to look for  
6 orphaned devices in the materials they handle and to take  
7 appropriate action when such devices are found in their  
8 possession. This means that the responsibility, including  
9 the financial responsibility, for handling and disposing of  
10 orphaned devices must be delineated clearly among DOE, EPA,  
11 the Commission, and state radiation control authorities.

12 Agency funding for the disposal of orphaned  
13 devices must be made available, through new legislation if  
14 necessary, and non-licensees who are likely to come into  
15 possession of orphaned devices must be given guidance on the  
16 risks involved, the means to identify lost devices, and what  
17 to do when such devices are found.

18 We believe the Commission should move forward on  
19 each of these fronts promptly and, to the extent feasible,  
20 concurrently.

21 In closing, let me return to where I began. Lost,  
22 abandoned or intentionally discarded radioactive devices  
23 represent a serious problem for steel-makers, metal  
24 recyclers, potentially exposed workers, and members of the  
25 general population. It is a problem that the Commission can

1 and should address promptly and effectively.

2 The staff's recommendation is a good starting  
3 point, but it does not go far enough or fast enough. We  
4 believe the NRC has an opportunity to take critical steps to  
5 prevent a serious over-exposure incident involving American  
6 workers and the local community. We hope the Commission  
7 will recognize the urgency of the problem and act  
8 accordingly.

9 Thank you very much.

10 CHAIRMAN JACKSON: Thank you very much.

11 Let me just ask you a question. Do you believe  
12 that it's important in whatever choice the Commission makes  
13 that there be the opportunity for enforcement and imposition  
14 of civil penalties?

15 MR. SHARKEY: Yes.

16 CHAIRMAN JACKSON: Okay. Thank you.

17 Mr. Collins.

18 Oh, you had a question? I'm sorry.

19 COMMISSIONER MCGAFFIGAN: The Tuscaloosa  
20 experience that you describe, it sounds like almost all of  
21 it was NORM because the six examples of piping from the oil  
22 and gas industry, it sounds like it's probably the  
23 accumulation of NORM material, it's not a device that was  
24 lost in the piping. So in that particular case, it sounds  
25 -- you know, we do a good job of passing the buck around

1 here, but it sounds like it's Ms. Lipoti's counterpart in  
2 Alabama that probably has, you know, most of the problem.

3 Is that a correct reading of that?

4 MR. SHARKEY: I can't comment on those particular  
5 incidents. You may, in fact, be correct. I'm sure Mr.  
6 Collins will cite other examples that will perhaps be more  
7 compelling.

8 COMMISSIONER MCGAFFIGAN: No, I fully understand  
9 that it's an integrated problem with NORM and the things we  
10 control, and that's why Ms. Lipoti is at the table.

11 MR. SHARKEY: Right.

12 COMMISSIONER MCGAFFIGAN: But I'm trying to bound  
13 it.

14 The other issue, and this may not be fair, maybe  
15 to Mr. Mattia, when you get one of these devices in a mill,  
16 if it's 9.9 millicuries and it gets melted, is it not a  
17 problem, or -- I mean, the 10 millicuries is what the  
18 working group recommended, and I'm not trying to enlarge a  
19 problem that's already thus far more than we can handle, but  
20 what was the rationale in the working group report for 10  
21 millicuries, and is a steel mill at risk if it's less than  
22 10?

23 MR. MATTIA: Jim, do you want to comment on that?

24 MR. COLLINS: First of all, the steel companies  
25 have set their devices at such a low level of tolerance in



1 order to discover sources of radiation that -- let me  
2 describe this. One truck driver had a physical, took a  
3 barium inhalation, and it rang the detector. They couldn't  
4 find any scrap on the truck.

5 So the answer is, whether it's NORM or whether  
6 it's the device, the radiation detector will ring, it will  
7 stop the ingress of scrap either on a truck or on a railcar,  
8 and that whole load has to be inspected to determine what  
9 set it off.

10 So every -- most mills have zero tolerance for  
11 radiation coming into their mills, and whether it's NORM or  
12 whether it's the device, they still have to inspect, and  
13 often when they inspect they find it's NORM, and often when  
14 they inspect they find the device.

15 COMMISSIONER MCGAFFIGAN: But that raises the  
16 issue, if we did a perfect job of taking the staff's -- the  
17 working group's recommendation and get all of the devices,  
18 general and specific, 10 millicuries and above and had them  
19 all accounted for, and the states did something similar,  
20 although I'm not exactly sure what that would be for NARM  
21 and NORM, would you all -- you all would still have to spend  
22 money, assuming perfection, you would still have to spend  
23 money for the categories of devices that are lower than  
24 still may be a problem for you; is that correct?

25 MR. COLLINS: Well, if the Cesium-137 device

1 volatizes and goes up into a baghouse in the form of vapor  
2 that is captured by the dust, that dust, if it's above two  
3 picocuries per gram, cannot be disposed of by the steel  
4 company.

5 COMMISSIONER MCGAFFIGAN: That's right.

6 MR. COLLINS: And the cost of disposing of the  
7 dust can be upwards of two to three thousand dollars per  
8 ton, and there are thousands of tons of this dust in  
9 railcars behind steel mills across the country who have  
10 melted either sources or certain kinds of background  
11 radiation that has caused the dust to be come higher than  
12 two picocuries per gram.

13 So most steel mills, whether it's NORM or whether  
14 it's --

15 COMMISSIONER DICUS: Is that the 10 millicurie  
16 cutoff, then, below that? And maybe Dr. Lipoti can address  
17 this, but I think, if I recall, somewhere in this  
18 neighborhood, there is a cutoff where it's unlikely that if  
19 a source were melted, there's going to be exposure impact on  
20 the workers together with the concentration of the baghouse  
21 dust.

22 DR. LIPOTI: The working group in an appendix had  
23 looked at a whole range of various sources, and in fact,  
24 they did not mention a specific cutoff for -- when they  
25 mentioned cutoff for the registration program, they said

1 Cesium-137 at greater than 10 millicuries, Cobalt-60 greater  
2 than one millicurie, Strontium-90 greater than .1  
3 millicurie. So it really depends on the source and the  
4 radioactivity involved.

5 They did a ranking based on what they felt would  
6 be the sources of concern, but the risk assessment which the  
7 staff has agreed to undertake would do a better sort of all  
8 of the sources which might be involved, and that was one of  
9 the working group recommendations as well as the staff  
10 recommendations that you do a risk re-ranking, and certainly  
11 something that I support and I'm sure that the steel  
12 manufacturers would be grateful to have better guidance --

13 MR. SHARKEY: Yes.

14 DR. LIPOTI: -- on exactly that point that you  
15 bring up.

16 CHAIRMAN JACKSON: So are you saying in the end  
17 that the issue is not to focus in on the specific threshold  
18 of ten millicuries --

19 DR. LIPOTI: That's correct.

20 CHAIRMAN JACKSON: -- but to wait and have a more  
21 informed way of making the judgment based on a risk  
22 assessment.

23 DR. LIPOTI: I'm not saying wait. The wait word  
24 was not mine. I'm saying start with what the working group  
25 recommended, which was several sources at varying ranges,

1 and then proceed with the risk ranking for the additional  
2 sources that you would want to include and be more informed  
3 about your next step. But the first step -- I thought it  
4 was pretty clear we should take that first step.

5 CHAIRMAN JACKSON: Okay. I think that for  
6 orderliness of process, because there are at least five  
7 presenters before we even get to the staff, I think it's  
8 important to just -- let's just walk through and have each  
9 person make -- and we don't mind if you make an abbreviated  
10 statement that kind of hits the high points, and then we can  
11 have a more robust discussion.

12 MR. COLLINS: I'm James Collins of the Steel  
13 Manufacturers Association. We have 59 steel companies in  
14 our membership with 48 in U.S., seven in Canada, and four in  
15 Mexico. We accounted for 43 percent of U.S. steel capacity  
16 in 1997. We're the primary trade group of the electric  
17 furnace steel producers, who are the largest recyclers in  
18 North America, probably the largest recyclers in the world.  
19 We recycled 42 million tons of various scrap last year, and  
20 by weight, I don't think anybody else gets up that high.

21 Unfortunately, this scrap contains radioactive  
22 sources and other sources of radioactivity. Sources are  
23 regulated by the NRC and typically come from spent or lost  
24 gauges used in manufacturing facilities and hospitals,  
25 military facilities that have been downsized, et cetera, and

1 they represent a problem for steel companies, a major  
2 economic problem for steel companies, for the environment,  
3 the health and safety of steelworkers and the general  
4 public.

5 We're obviously unhappy about the lack of progress  
6 in doing something about these loss sources in the scrap  
7 supply.

8 Two examples we used in our statement are the one  
9 down in Texas where a Cobalt-60 source got lose. It was in  
10 a camera weighing approximately 1600 pounds, containing a 35  
11 and a half curie source of Cobalt-60, and in a second camera  
12 weighing 600 pounds containing an 8.6 curie source of  
13 Cobalt-60.

14 The net result, after these sources were bounced  
15 around amongst some scrap dealers, one finally having found  
16 through radiation detection that this particular source was  
17 radioactive, was that the source was sent back to another  
18 dealer and in the process, the capsule containing the cobalt  
19 fell out from under a truck and resulted in the exposure of  
20 twelve adults and two children with pretty severe doses of  
21 radiation. The truck driver suffered severe radiation  
22 blistering from handling the source, and five police  
23 officers also received low doses of radiation.

24 The next example is an SMA member company in  
25 Kentucky melting two Cesium-137 sources. The steel company



1     sustained a \$10 million loss. Today it has on site twelve  
2     railcars full of low level contaminated baghouse dust  
3     resulting from the incident. It has an additional one  
4     million pounds of dust in storage containers, 10,000 cubic  
5     feet of protective equipment that was used during the clean-  
6     up, and 15,000 cubic feet of contaminated gravel and soil.  
7     All this eventually has to be disposed of, and the costs are  
8     going to be horrendous.

9             There have been 26 known incidents, as Andy  
10    Sharkey has just indicated. We have listed the companies in  
11    our membership where those incidents have occurred.

12            The NRC staff we believe incorrectly portrays the  
13    radioactive source problem as only an economic problem for  
14    steel companies. We believe that there are health and  
15    safety factors here that warrant the attention of the  
16    Commission as well as the economic. We don't mean to  
17    minimize the economic impact, but that there are dual  
18    factors involved here, both health and safety of our  
19    workers, the general public, and certainly the economic  
20    impact is a major one.

21            We believe that -- we don't have an exact number,  
22    but we believe between 100 and 150 million dollars of cost  
23    has already been incurred in steel companies, and that does  
24    not include the disposal costs of all those railcars full of  
25    dust behind these steel plants that have to be taken care of

1 eventually, so you're probably look at at least \$300 million  
2 of cost over a ten-year period of time.

3 The U.S. Congress enacted the AEC Act establishing  
4 the Atomic Energy Agency, now the NRC, to protect the health  
5 and safety of the public. We believe that the risk of lost  
6 radioactive sources in U.S. scrap supply were unanticipated  
7 when the act was passed, but the mounting losses of these  
8 source, however, show that the current regime for licensing  
9 and maintaining an accurate inventory of generally licensed  
10 sources has not been effective.

11 We're sort of dismayed and we're really puzzled  
12 and a little angry that the NRC staff, instead of  
13 immediately initiating a rulemaking to solve the problem,  
14 proposes to do further study and wait until the year 2001,  
15 which from the inception of the advisory group, the working  
16 group, would be probably six years before something might  
17 happen.

18 All our members have installed highly  
19 sophisticated radiation detection systems to monitor the  
20 incoming scrap, and they believe, and I think honestly so,  
21 that they are the innocent victims of insufficient control  
22 of radioactive sources in the economy.

23 Radioactive scrap is one of the highest priorities  
24 for our member companies. They're doing everything  
25 reasonable to keep radiation out of their mills, and they

1 have had frequent visits with the NRC Commissioners and  
2 staff and EPA and members of Congress to try to explain the  
3 problem and determine if something could be done as rapidly  
4 as possible.

5 We do not believe that a course of action to do  
6 additional study given the fact that there is already a  
7 wealth of data out that we published, that the states  
8 published, that the Conference of Radiation Control Program  
9 Directors publishes on incidence, will prove anything other  
10 than to be a waste of time, and we think further study is  
11 unnecessary and we would like to see some action implemented  
12 to impose A) a strong monitoring program to assure  
13 accountability for these sources amongst the source holders,  
14 and we fail to understand why this is controversial.

15 3M was on the advisory group, was on the working  
16 group, and 3M has 1,500 sources within its corporate  
17 structure, and 3M said, we'd be glad to engage in a more  
18 strict monitoring program for the sources we hold and a  
19 reporting program to report the status of those sources to  
20 the NRC, and they, as a responsible company, they have taken  
21 this position because they recognize that it is not in their  
22 long-term interest to lose these sources and have the loss  
23 of the sources attributed back to them.

24 On the other side of the equation, if there is  
25 either an inadvertent loss of a source or a negligent loss

1 of a source, we think a \$2,500 fine is meaningless. You  
2 could impose a \$25,000 fine on an inadvertent loss and a  
3 \$100,000 fine on a negligent loss and possibly capture the  
4 attention of the source holders with that kind of a program,  
5 but you're not going to do it with a \$2,500 fine.

6 MR. SHARKEY: True.

7 MR. COLLINS: We think the staff proposal to  
8 initiate a licensing program to cover only Cesium-137  
9 sources over 500 millicuries is inadequate. We picked up  
10 sources below 500 millicuries that -- at steel companies  
11 through their detection system equipment, and we know that  
12 if those sources below 500 millicuries were taken into the  
13 furnace, that we would have contaminated electric furnace  
14 dust, we would have contaminated furnaces, we would have to  
15 stop production to clean up, and you're talking about  
16 millions of dollars of losses. So we don't understand the  
17 cutoff.

18 We think that something ought to be done about  
19 orphaned sources so that kind of a situation that occurred  
20 down in Texas does not reoccur where people are footballing  
21 source back and forth because they don't want to hold it  
22 because they know that disposition of that source is going  
23 to cost them money. We think a federal program should be  
24 implemented to do that.

25 In closing, I would like to express my

1 appreciation to you, Chair Jackson, and to Commissioners  
2 Diaz and Dicus and McGaffigan for having this hearing. We  
3 think it's important, we think the issues should be  
4 addressed and addressed quickly by the Commission.

5 Thank you.

6 CHAIRMAN JACKSON: Thank you.

7 Mr. Mattia.

8 MR. MATTIA: Good afternoon, Madam Chairman,  
9 Commissioners. My name is Mike Mattia, I'm the director of  
10 risk management for the Institute of Scrap Recycling  
11 Industries, and like my fellows at this table, we want to  
12 thank you for the opportunity to address you today.

13 I am representing approximately 1,600 companies,  
14 most of them small businessmen who are in the business of  
15 recycling scrap material. You name it, we recycle it.

16 Primarily the problem here is with the scrap  
17 metals, the iron, the steel, the aluminum, the copper, the  
18 stainless. These are metals that have value. These are  
19 metals that continue to have value, and oftentimes, these  
20 metals compose the housing that protect devices, material  
21 that contain radioactive contaminated material or  
22 radioactive sources.

23 It's because of the value of the material, the  
24 metal, that these sources come to scrap recycling  
25 facilities. They're not brought their intentionally.



1 Oftentimes the demolition contractor or the peddler has no  
2 idea when he's bringing in a load of scrap. Also the scrap  
3 recycler doesn't realize that the material that's being  
4 brought to his facility contains possibly deadly amounts of  
5 radioactive material.

6 When that material gets to a scrap recycling  
7 facility, it generally undergoes a very, very rigorous  
8 process of cutting, bailing, shearing, shredding to conform  
9 the metal so that it can go to the various steel mills for  
10 remelting. The problem is that those type of rigorous scrap  
11 processing can not only breach a housing, it can  
12 disintegrate it, and now you have radioactive material that  
13 is out in the clear.

14 This is where the problem starts for the scrap  
15 recycler -- unknowingly receiving material, putting it  
16 through a tremendously rigorous process. Imagine being able  
17 to take an automobile and shred it to fist-size pieces in a  
18 matter of seconds. You can imagine what that can do to the  
19 housing of a radioactive source.

20 To date, to the best of our knowledge, the  
21 consequences on our members of improperly controlled  
22 radioactive material has been purely economic, but it's been  
23 hefty economic. There's been millions of dollars that have  
24 to have been spent to install radiation monitors, to  
25 decontaminate land and equipment, and to transport and

1 dispose of contaminated material, contaminated byproducts.

2 How often has this happened? The numbers  
3 literally change daily. As of the writing of this report,  
4 there were 2,400 detections, and 270 recovered sources and  
5 the smelting of 31 sources of radioactivity. It's our  
6 knowledge and belief that that number represents a very  
7 small fraction of what is actually out there and what our  
8 members, the members of my cohorts and the general public  
9 are being exposed to every day.

10 Now, as we mentioned, to date, these occurrences  
11 have only caused economic hardships. However, the potential  
12 for physical harm is tremendous. That there has yet been  
13 reported in the U.S. a death or a serious threat to health  
14 of either a person working in a scrap recycling facility or  
15 a steel mill or in a community that surrounds these  
16 facilities can be chalked up to only two things: one, the  
17 diligent efforts of the individuals that represent the  
18 companies at this table and their companies in monitoring  
19 and in sheer luck.

20 Generally, our industries every day play a game of  
21 Russian Roulette. We get -- sources are out there, they're  
22 coming in, and so far, other than economic, our luck has  
23 held up. However, how long do we play such a deadly game  
24 before our luck runs out, before we shred or shear a source  
25 and cause main contamination in a facility or in an outlying

1 community or both?

2 The working group that is spoken of issued a very  
3 thorough report and we wholly endorse all of the elements in  
4 that report. The elements that we particularly are  
5 concerned about is the increased regulatory oversight of the  
6 various amounts of the stated isotopes, more stringent civil  
7 penalties, and a program for handling orphaned devices.

8 The NRC staff has commented on that working  
9 group's report, and I would like to just talk about for a  
10 brief few moments their report.

11 In terms of the registration program, first there  
12 is the concern of the rulemaking process. It's been  
13 mentioned here already several times that it's a lengthy  
14 rulemaking process. If a rulemaking process is, indeed,  
15 necessary, I echo everyone else at the table that the  
16 Commissioners do whatever is possible to expedite that  
17 rulemaking process so that it indeed goes farther quicker.

18 However, would there need to be a rulemaking to  
19 simply ask all licensees that fall within the parameters of  
20 the working group a simple question: Do you still have what  
21 you're supposed to have?

22 Should the staff not use currently available  
23 resources to conduct a mailing that asks that question?  
24 Then you would have information that would tell you the true  
25 scope of the problem -- what is now under proper control?

1 And the response from this mailing could then determine what  
2 was needed in terms of a registration program to assure that  
3 all devices eventually come under proper control.

4 The working group's recommendation was for  
5 increased regulatory oversight of the various isotopes at  
6 the various limits, and since each of these has found their  
7 way into scrap recycling facilities at one point in time or  
8 another, we wholeheartedly endorse those parameters.

9 However, the staff had indicated that its current  
10 budgetary resources would only allow, for example, for it to  
11 do a complete registration and follow-up of the 500  
12 millicurie sources of Cesium-137 in terms of numbers. If  
13 they were to go any further, they could do a registration  
14 but they could not do a follow-up. Is that prudent?

15 The other question that comes back to the problem  
16 of what we think would be a good census is that suppose we  
17 take several years and ultimately we follow the staff's  
18 recommendations and we go out and we find out that all of  
19 the cesium sources of 500 millicuries are fine, we have just  
20 taken a tremendous amount of time and effort to find that  
21 we're safe from those, but we have no idea what the hazard  
22 is to the rest.

23 So what we propose that this Commission look at  
24 is, number one, that we go and find out what do we know of  
25 the sources that are supposed to be under the care and

1 custody and control of individuals who have either a general  
2 or specific license to have those in their possession. Then  
3 we can use that information as the basis of a rulemaking to  
4 determine what do we really need to go out and control, and  
5 also as part of the rulemaking, to ask if there are limited  
6 resources, and we understand that it's a reality, what  
7 should be the hierarchy of the sources that are known to be  
8 missing that we should go after and find and try to control.

9 Finally, we understand that the working group has  
10 indicated that labeling and identification of sources should  
11 be improved, and we didn't see specific recommendation of  
12 that in the staff's report, but that's very important.  
13 while we and everyone at this table will continue to expend  
14 tremendous resources on identifying material using source  
15 device detection, one of the best ways still is visual  
16 identification.

17 Oftentimes, you can take a very potent source, put  
18 it in a large railcar full of scrap metal, and the most  
19 sensitive detection device won't pick it up because the  
20 scrap metal itself causes more shielding. So if there were  
21 better ways of identifying sources permanently so that if  
22 the mechanical detection fails, we can follow it up  
23 hopefully with visual detection.

24 There were recommendations for penalties for lost  
25 devices, and as I hear everyone at this table will clearly



1 agree that \$2,500 to lose a gauge that could cause  
2 significant threat to health or life is far from being  
3 appropriate.

4 So we ask the Commission to look at the penalty  
5 system as a two-phase, first that the Commissioners consider  
6 increasing the fine for the loss of a device that is  
7 identified before it can cause any damage to two to three  
8 times the cost of authorized disposal. However, if the  
9 handling of the device causes human suffering or  
10 contamination of equipment, grounds or product, the fine  
11 against the identified party responsible for the device  
12 should reflect the actual cost of full cleanup and the loss  
13 of business revenue.

14 Further, we ask that the Commissioners consider  
15 using these fines to create a fund that avoids the burden  
16 today to the private company, out-of-pocket expenses for the  
17 decontamination disposal and loss of business revenue.

18 Finally, there is the issue of orphaned devices.  
19 Both the NRC staff and the group agree that there are  
20 various state and federal agencies that have various amounts  
21 of authority, and that an understanding and a working  
22 relationship should improve. Yet very often, even though  
23 there is authority out there, in many cases, our members,  
24 when they find a source or have a problem, they'll go to an  
25 agency, that agency will refer them to the second, the

1 second to the third, and the third will refer them back to  
2 the first one, and if there is ever a direct answer,  
3 generally that answer is, "You have it, it's your problem."

4 We understand generally the problem is because of  
5 limited funds, and it's also been expressed that as long as  
6 a device is there and the shielding is intact, then it can  
7 stay in a scrap yard, it can stay in a steel mill because it  
8 doesn't pose an immediate threat. Again, we ask is that  
9 prudent? We're not in the business of handling devices, of  
10 receiving them; we shouldn't be in the business of storing  
11 and disposing of them either.

12 We agree that the various federal agencies should  
13 determine how best to dispose of these devices, but we ask  
14 that if a device is found in a scrap yard or a steel mill,  
15 that it be removed from that venue, it be placed under an  
16 appropriate venue in a federal or state agency, and then  
17 figure out how to dispose of it, but get it out of the  
18 private sector.

19 Again, we would like to thank the NRC staff for  
20 all of their work. We have had a wonderful working  
21 relationship, and it's this relationship that has increased  
22 the understanding in our industry and it's going to  
23 continue.

24 We're not going to slack off regardless of  
25 regulations. We will continue to monitor, we will continue

1 to install detectors, and we will continue to aggressively  
2 pursue this issue. But we need help, we need the cavalry,  
3 because we cannot keep playing this game of Russian  
4 Roulette, because if something serious happens, if we have a  
5 serious, serious contamination, a serious breach of a  
6 source, then as we all know, it is out of all of our hands.  
7 It becomes the purview of the press, it becomes the purview  
8 of knee-jerk reaction.

9 We're concerned with the health and safety of not  
10 only our workers, but our communities if that should happen,  
11 and we would like to see that that hopefully not happen.

12 Thank you.

13 CHAIRMAN JACKSON: Thank you.

14 Mr. Fletcher.

15 MR. FLETCHER: Chairman Jackson, Commissioners,  
16 NRC staff, fellow presenters and members of the public,  
17 first of all, I am honored to represent the Organization of  
18 Agreement States as its chair.

19 As many of you know, the agreement states number  
20 30, and currently license and regulate about two-thirds of  
21 all the byproduct material, radioactive material that is  
22 licensed.

23 I'm also very pleased to have this opportunity to  
24 make this presentation before the Commission to further  
25 emphasize the bond that exists between the NRC and the

1 Organization of Agreement States. It's more than -- a bond  
2 that has been strengthened over more than 35 years, and I  
3 look forward to helping to further strengthen that bond.

4 I'm here to speak today initially about the report  
5 of the working group on the regulation of generally and  
6 specifically licensed devices, initially from the standpoint  
7 of OAS support, and our support is for the working group  
8 report in that it, we believe, demonstrates the need for the  
9 regulation of all licensed devices, and our particular  
10 concern, as it is the concern of those who presented before,  
11 is the oversight of GL devices.

12 This increased oversight that we feel is necessary  
13 stems from instances that have occurred in virtually all of  
14 the 30 states I represent. These instances vary depending  
15 upon the kinds of situations and materials we encounter, but  
16 they have involved emergency responses to reports of  
17 contamination at landfills, scrap yards, incinerators, and  
18 oftentimes frequently these responses are caused by  
19 contamination produced from GL devices.

20 I must admit as a program manager that I suffer  
21 from a little bit of regulatory paranoia when it comes to  
22 devices that I know very little about as far as their  
23 location, as far as their activity, as far as what the  
24 reporting requirements are.

25 I have a feeling that many of my fellow program

1 managers suffer from the same ailment, and what we would  
2 like to see very much is a program of regulatory  
3 responsibility with respect to generally licensed devices.

4 If something happens to a licensee who has been  
5 issued a specific license, we feel very confident that we  
6 can trace from cradle to grave or we should be able to trace  
7 from cradle to grave everything that has happened to that  
8 material and everything that a facility has done to maintain  
9 radiation safety.

10 We have no idea and we're very uncomfortable with  
11 the fact that there are a number of GL devices in various  
12 areas that we have no idea about their location, whose  
13 managing them, what the management practices are, et cetera.  
14 So we would support very strongly that these devices be  
15 brought under control and that they be -- that some level of  
16 responsibility -- that a level of responsibility that gives  
17 comfort to the public as well as the regulatory agencies be  
18 followed, and I believe that the working group report  
19 itemized very well how that should be done.

20 We want to further emphasize the need for the  
21 regulation of all licensed devices, from a program of  
22 consistency more than anything else. The Agreement States  
23 have a broad requirement for regulation. We regulate not  
24 only materials, of course, but all sources of radiation to  
25 varying degrees depending upon the states.

1           I realize there is a great deal of controversy  
2 regarding what to do about naturally occurring radioactive  
3 materials and devices that contain this material, but I  
4 don't see how we can be a consistent regulatory body,  
5 particularly in the eyes of the public who don't understand  
6 all that we do or don't do, I don't understand how we can  
7 continue to pursue our goal of radiation safety across the  
8 country without taking into account the need for the  
9 regulation of these devices, and I believe very strongly  
10 that the opportunity is being presented here with the  
11 institution of the national registry to bring all radiation  
12 producing devices under some form of control.

13           As you'll note in my comment, I see this initially  
14 as being a national program, but it has the potential of  
15 some degree of worldwide benefit, and as this becomes a  
16 smaller and smaller planet, I believe that's going to be a  
17 greater and greater necessity.

18           So from Agreement State perspective, I'm here to  
19 reinforce the recommendations made by the working group.  
20 The working group process, as we mentioned in instances  
21 before, we believe is a very beneficial process because of  
22 the way various agencies and various individuals are brought  
23 together to discuss these problems. So I believe that more  
24 attention and more care should be given to their  
25 recommendations than has been at this point.

1 I'm going to take the liberty at this point to  
2 just mention -- I realize that these weren't primary  
3 subjects, but to just mention two other areas that the  
4 Agreement States do have some concerns about, hopefully for  
5 future discussions.

6 One of those is the recent proposal to transfer  
7 responsibility of formerly licensed sites to the Agreement  
8 States. This is a very, very controversial and very, very  
9 distressing subject which we will be providing -- some of  
10 the states are individually providing input, but we will be  
11 providing further discussion. This is, we believe, outside  
12 of our agreement. Secondly, we need to address the current  
13 status of DOE contractors.

14 Once again, I bring these subjects up because they  
15 are very, very controversial, they are very, very bothersome  
16 to many of the member states, and I hope that we have the  
17 opportunity to discuss them further at some time in the not  
18 too distant future.

19 Once again, I appreciate this opportunity to  
20 discuss these subjects, and I hope that you will take these  
21 comments in your discussions and give them the attention  
22 that the Agreement States would like them to have.

23 Thank you.

24 CHAIRMAN JACKSON: Thank you very much.

25 Dr. Lipoti.

1 DR. LIPOTI: Chairman Jackson, Commissioners, I  
2 have provided formal notes, formal testimony, but I'm not  
3 going to speak from that testimony, I'm just going to talk  
4 to you and then you can ask questions.

5 I'm very pleased that you have convened this  
6 meeting because it's important for you to take action on the  
7 staff's recommendations to have a registration program for  
8 GL devices. The states have been dealing with this issue  
9 for quite a while, and it's wearing sort of thin.

10 CRCPD supports the recommendations of the NRC  
11 Agreement State Working Group based on the consequences of  
12 the loss of accountability of the material.

13 In terms of the risk assessment, we very much look  
14 forward to the comprehensive risk assessment of all the  
15 material currently in use to restructure the current  
16 licensing and inspection programs, and I understand that's  
17 due to be finished in October of '98 and I'm very pleased to  
18 see that going forward.

19 We recommend that for the GL devices, that you  
20 consider the economic consequences as well as health risk  
21 because I think that will assist you in coming up with a  
22 second tier of GL devices that might be subject to a  
23 registration program. So we very much support and look  
24 forward to that risk assessment.

25 In terms of the universe of regulated facilities,



1 we recommend that the registration program apply to the  
2 sources as delineated in the working group's  
3 recommendations: Cesium-137, greater than 10 millicuries;  
4 Cobalt-60, greater than 1 millicurie; Strontium-90, greater  
5 than .1 millicurie; and transuranics, greater than 1  
6 millicurie.

7 Of course, CRCPD stands ready to work with you  
8 with our suggested state regs so that we can go forward on a  
9 parallel rulemaking so that the states will be ready to  
10 adopt in an expedited fashion.

11 I have to say that I believe that NARM sources  
12 must be regulated to the same degree and based on the same  
13 risk and the same kinds of risk assessment that you are  
14 doing with your AEA materials. So I would like to charge  
15 our suggested state reg committee to incorporate  
16 requirements for both AEA and NARM material, so that would  
17 expedite the adoption of those regulations by the states.

18 The difficulty will be in coming up with a risk  
19 assessment for all of the NARM sources, and if funding is  
20 available, I would like CRCPD to take that on, but I'm not  
21 sure we're going to be able to do that. That could be  
22 fiscally constrained.

23 On the issue of implementation, I think when you  
24 design your automated system, it should be big, it should  
25 take into account the universe of at least the 30,000

1 sources that are recommended by the working group, if not  
2 bigger, and not just design an automated system for the  
3 first 500 and then try and make it bigger later. When you  
4 design some automated system, it's important to account for  
5 growth.

6 The rulemaking should also be for the entire group  
7 of working group recommended sources, but you may need to  
8 phase in additional sources based on your risk assessment.  
9 I think that if you spread the costs over the larger  
10 universe of sources, that the cost might be able to go down  
11 for each licensee. I thought the cost was a little high per  
12 licensee.

13 One of the things that the staff didn't include  
14 was the vendor responsibilities, and some of other  
15 presenters have mentioned that. I certainly support that  
16 recommendation in the working group paper, and I think it's  
17 extremely important for the vendors to inform their  
18 customers that registration fees might be charged, that the  
19 material is radioactive.

20 I saw the literature, the sales literature, the  
21 tritium signs -- I've had a lot of tritium sign problems  
22 lately -- and the sales literature never mentions that  
23 tritium is radioactive, and I don't think that it's  
24 universally known.

25 The cost for disposal should be included up front

1 on the information that someone receives if they're going to  
2 purchase one of these devices. They should be warned that  
3 there is substantial cost for clean up if that device  
4 becomes involved in an incident, and that there are  
5 penalties for non-compliance. I would just suggest that you  
6 convene a group of vendors and you gain their input into  
7 what they might incorporate into their sales literature.

8 It's important also to have information available  
9 for non-licensees so that the finders of these sources have  
10 some direction what they should do when they find them.

11 I would like to talk just briefly about the  
12 CRCPD's orphaned source initiative because I'm not sure that  
13 all of you were aware of this initiative. EPA has provided  
14 funding to CRCPD in the amount of \$200,000 and the goal is  
15 to develop and facilitate implementation of a dynamic  
16 nationwide system that will effectively manage orphaned  
17 sources.

18 CRCPD has named a committee with Joe Klinger as  
19 the chair, Jim Yusko, Bob Free and Cheryl Rogers as members.  
20 Jim Yusko is here today. And they're meeting next week to  
21 start on their charges. One of their first charges is to  
22 define the roles and responsibilities and the procedures for  
23 the major stakeholders. I think some of the testimony  
24 presented here has shown that the roles are not clear yet  
25 between various agencies and their authorities, so that

1 becomes a very important issue.

2 The CRCPD's committee is also developing a  
3 materials management program which will describe brokerage  
4 facilities available, direct disposal, and will provide  
5 outreach to manufacturers for recycling options, so that  
6 when someone finds one of these sources, they can have a  
7 flow chart for how to get rid of it.

8 We intend to put forward an outreach program which  
9 would include outreach to finders of the sources as well as  
10 the other stakeholders involved. We wish to maintain an  
11 incident database. NRC staff participates. They provide  
12 staff input to this committee, as does the Department of  
13 Energy.

14 I think what you have for generally licensed  
15 sources is this regulatory net, but there are holes in this  
16 net where these sources are getting through, so then there  
17 is this secondary net which has been put in place and kind  
18 of tagged together by the steel manufacturers and the  
19 recycling industries and states, and this secondary net is  
20 wearing thin, and that's why we're here today, to tell you  
21 how important this is.

22 I'm starting to see evidence that people are  
23 trying to hide these sources when they put them in the scrap  
24 metal. In November, one of my staff went out on a scrap  
25 metal alarm incident and when he came back, he said, Jill, I

1 think you should know about this one because it was  
2 interesting. The source was in a coffee can and there was  
3 chain wrapped around the coffee can and some sort of  
4 rudimentary shielding. They kind of hoped it would get past  
5 the detectors. It didn't this time. So we start to see  
6 evidence of people trying to evade the second net, which  
7 isn't even regulatory, it's just a safety net, and I think  
8 that our staff is distracted form their normal duties when  
9 they have to respond to alarms, and there's a lot of them,  
10 it's more than one a week.

11 So we're ready for new options, and we want to  
12 proceed forward on this, and that's why I didn't say wait.

13 Thanks.

14 CHAIRMAN JACKSON: Okay. Thank you very much.

15 Commissioner Dicus.

16 COMMISSIONER DICUS: Thank you. I don't have any  
17 questions right now. I will have some questions for the  
18 staff, and I think they have a feeling what some of those  
19 might be, but a couple of comments, and one of them is on  
20 rulemaking.

21 Granted, sometimes our rulemaking process is a  
22 little extended, but at least part of that is due to the  
23 process we must follow, and we can't go outside of and  
24 general counsel would probably address this much better than  
25 I can.

1           The other issue on the cost of the program and  
2 particularly the cost per licensee, I choked a little bit  
3 when I saw those costs, and one of the things we'll ask the  
4 staff to do is explain where those costs come from. But  
5 they may be close to valid and it's just one of those  
6 problems that we have to factor into what we're doing.

7           CHAIRMAN JACKSON: Thank you.

8           Commissioner Diaz.

9           COMMISSIONER DIAZ: Just a quick comment. It  
10 seems to me like when we covered all the subjects, there was  
11 an area that was really prevention, and, you know, we --  
12 that sounds loud and clear to us.

13           The other area was the mitigation area, and I  
14 heard some things about, you know, orphaned sources and so  
15 forth. I think one area that, you know, sometimes we have  
16 to deal with is the stream of contaminated materials which  
17 are not radioactive enough to be considered as orphaned  
18 sources and what happens to those materials, whether they're  
19 NORM or NARM and so forth.

20           I understand from the presentation of Mr. Collins  
21 that there are enormous amounts of materials with a slight  
22 amount of contamination that are not being dealt with, and  
23 that will be an important consideration.

24           Thank you.

25           CHAIRMAN JACKSON: Commissioner McGaffigan.

1           COMMISSIONER MCGAFFIGAN: Mr. Mattia, you  
2 mentioned the possibility of just sending out a mailing and  
3 trying to find out what the scope of the problem is.

4           As I understand it, we don't know in the case of  
5 generally licensed devices who to send the mailing to  
6 because we don't keep track of generally licensed devices.  
7 Am I wrong on that?

8           MR. MATTIA: Well, it was my understanding from  
9 the staff that anyone who purchases a generally licensed  
10 source that the manufacturer submits their information to  
11 the NRC, and so there is a start of a database that if I  
12 brought a generally licensed source in 1975, and I listed an  
13 address, that that would be the first point of contact: Are  
14 you still at this address and do you have the licensed  
15 source?

16           COMMISSIONER MCGAFFIGAN: And then if it isn't, we  
17 have a -- okay. So I understand, what you're saying is we  
18 would use -- for the specific licensees, we should have  
19 their addresses. For the general licensees, we would use  
20 the addresses that were given to us by the manufacturers and  
21 see if the people have them. That's your proposal. Okay.

22           In the case of radium -- in the case of NARM and  
23 NORM, you mentioned, Ms. Lipoti, that over 50 percent or  
24 about 50 -- a lot of the cases involve Radium-226 that end  
25 up in these folks' mills. Do you have a curie level that

1 you would, if you're doing the state regulations today, that  
2 you would propose to your fellow states, like the 10  
3 millicurie or the 1 millicurie or the .1 millicurie that we  
4 had for the other substances?

5 DR. LIPOTI: I don't. I think a risk assessment  
6 is very much needed in that area and has not been done.

7 COMMISSIONER MCGAFFIGAN: Okay. The last item,  
8 and most of these questions, I agree with Commissioner  
9 Dicus, go to the staff, but I do think, having listened to  
10 this debate for the last 14 months, we may have to take some  
11 of you up on your offer to help us on funding, because I  
12 think that the staff's reluctance is partially funding, that  
13 they see large resources and they're not quite sure -- maybe  
14 having more people paying fees would be one way to solve the  
15 problem, but you get into some inequities, some fairness  
16 issues.

17 I also think this economic issue is pervasive, the  
18 question of whether it's strictly a public health and safety  
19 job, and that may be what the Atomic Energy Act requires --  
20 I'll defer to counsel on that -- and the degree to which we  
21 can take into account under our current framework these  
22 large economic costs that accrue to non-licensees.

23 But those seem to me -- I mean, if you're trying  
24 to figure out why the staff is proposing something less than  
25 what the working group proposed, I think it is partly a fee



1 issue and then it's partly how much do I take into account  
2 these large economic costs that are being accrued by folks.

3 It also comes up in the orphaned device thing.  
4 The reason you have everybody pointing to the next person at  
5 the table is that -- and I'm not sure that's our  
6 responsibility since we don't have a place to put them, but  
7 I tend to think, having listened to the discussion, that  
8 somebody should be willing to take the -- some federal  
9 official, not just on an imminent danger to public health  
10 grounds but as a matter of fairness should be willing to  
11 take some of these things off of people's hands once they're  
12 in their hands.

13 But the problem seems to be, again, whose  
14 responsibility that should be and should there be a  
15 criterion other than just imminent danger to public health,  
16 but some sort of recognition that this is a public policy  
17 program problem that we're dealing with, and there's a  
18 fairness issue to the innocent victim.

19 But I'll take any comment you want to make.

20 MR. COLLINS: On the question of fairness, during  
21 the working group meetings over a period of 18 months or so,  
22 there was no comment from any holder of a device, and I'm  
23 talking again using 3M as a case in point, a company which  
24 has 1500 of these devices, that a nominal registration cost  
25 and annual fee for the holding of these devices is not in

1 order. Steel companies themselves use these devices. There  
2 is such a proliferation of these devices across this economy  
3 that all kinds of industries and all kinds of service groups  
4 like medical establishments have these devices, and more and  
5 more are coming on line.

6 A nominal fee certainly seems to us to be a better  
7 approach to funding the program on the part of the user than  
8 a huge economic impact on the part of a number of  
9 unfortunate companies that can't shield these devices from  
10 going into their operation.

11 COMMISSIONER MCGAFFIGAN: May I just ask another  
12 question?

13 CHAIRMAN JACKSON: Go ahead.

14 COMMISSIONER MCGAFFIGAN: \$480 per device times  
15 1500 -- you're sure 3M would make the same statement having  
16 heard the staff's estimate per device?

17 MR. COLLINS: Well, I --

18 COMMISSIONER MCGAFFIGAN: Even a hundred dollars.  
19 Even if it's a hundred dollars, which is what Oregon  
20 achieves, 100 times 1500 is \$150,000.

21 MR. COLLINS: You're talking about a device that  
22 costs -- it can cost upwards of two or three hundred  
23 thousand dollars, and a \$100 registration fee for such a  
24 device or a \$200 fee is a very nominal cost to run a  
25 radioactive device in the American economy, yes.

1 Absolutely.

2 CHAIRMAN JACKSON: Dr. Lipoti and then Mr. Mattia.

3 DR. LIPOTI: I had some thoughts. I also puzzled  
4 over the fact that costs cannot be considered for regulatory  
5 actions necessary to ensure adequate protection of health  
6 and safety of the public, and I thought about it, and then I  
7 came up with, but costs can be a factor in those cases where  
8 there's more than one way to achieve a level of adequate  
9 protection, and in this case, one of your adequate  
10 protections of the public is really the steel manufactures  
11 and the scrap metal people having these alarms on their  
12 facilities.

13 So I think that you need to consider that another  
14 way of providing adequate protection might be a stronger  
15 regulatory program, and then there, maybe the economic  
16 consequence -- the economics could be factored in. So I  
17 would want to talk to that general counsel a little bit  
18 about how that might be factored in.

19 CHAIRMAN JACKSON: Well, she's sitting at the  
20 table.

21 MS. CYR: There's nothing under the Atomic Energy  
22 Act -- I mean, the Atomic Energy Act provides that we may  
23 take action to minimize damage to property. Where we have  
24 taken it into account is -- the only place where we have  
25 limited it is, as you said, in -- when we're going to beyond

1 adequate protection in reactor space have we placed any  
2 limits on our ability to do that vis-a-vis backfitting  
3 considerations. But the Act clearly provides that the  
4 agency has authority to take action to minimize danger to  
5 property.

6 CHAIRMAN JACKSON: Well, that's an interesting  
7 comment, and I'll just then interject a comment, and maybe  
8 it's from a strategic point of view in terms of if you ever  
9 have occasion to present again, notwithstanding what the  
10 general counsel said, it seems that you missed an  
11 opportunity to talk about it from an environmental  
12 protection perspective in terms of a device that gets broken  
13 apart or whatever ending up in a scrap metal stream and  
14 ending up therefore being propagated beyond the boundaries  
15 of your property and having some adverse impact, as well as  
16 a focus on the worker.

17 MR. COLLINS: I did mention in my statement the  
18 impact on the environment.

19 CHAIRMAN JACKSON: You did mention that? Right.  
20 But I'm just saying in terms of highlighting it as opposed  
21 to how many dollars it's costing you. I mean, there is an  
22 implied -- we accept Dr. Lipoti's point of view, you know,  
23 secondary regulation where there is some cost for you, but I  
24 really think, from the point of view of where our  
25 responsibilities lie, I think the issue of worker protection

1 and the issue of environmental protection is an important  
2 consideration.

3 MR. COLLINS: The states are very concerned about  
4 the carloads of irradiated electric furnace dust in rail  
5 cars that are behind the string of steel plants that have no  
6 home, no place to go. Very concerned.

7 CHAIRMAN JACKSON: Okay.

8 DR. LIPOTI: I want to make one more point. You  
9 might consider taking the penalty money for people not  
10 complying and putting it in a revolving fund that could be  
11 made available for disposal of some of this.

12 CHAIRMAN JACKSON: Well, these sorts of issues  
13 have come up in the past about what to do --

14 MS. CYR: That would require legislation.

15 CHAIRMAN JACKSON: -- yes -- with our civil  
16 penalties, and that's not so straightforward. But it's an  
17 interesting idea.

18 Mr. Mattia.

19 MR. MATTIA: Yes, thank you.

20 I wholeheartedly agree with Commissioner  
21 McGaffigan. There is a reality here that there are  
22 restraints. We would have loved nothing more than to come  
23 to you and say please register everything effective -- take  
24 a couple months to implement it, and if you need a dozen  
25 FTEs, we'll run up on the hill and get them for you. We

1 would love that to happen, but the reality is the sources  
2 are out there, they're showing up at the facilities, and  
3 maybe what we need to do is find out what the most effective  
4 way of combatting this problem short-term is.

5 I mentioned the fact that in the staff report,  
6 they talked about let's go after the 500 millicurie cesium  
7 sources. Well, granted, these are the most dangerous, but  
8 if we spend several years, get to the end of that road, and  
9 find out they're all safe and sound, what have we  
10 accomplished except we have assured that we're not in danger  
11 from those but probably from everything else. So go out and  
12 find out what's really the scope of the problem, work to  
13 find what resources are truly available and hone them in on  
14 where we can stop the leaks in the dam as quickly as  
15 possible and then start to expand the coverage area to  
16 hopefully someday include everything.

17 CHAIRMAN JACKSON: Mr. Sharkey.

18 MR. SHARKEY: Just briefly, I would like to  
19 respond to Commissioner McGaffigan.

20 I think the steel manufacturers here would be much  
21 more interested in devoting our energy and resources to  
22 addressing the funding issue than going out and conducting  
23 additional surveys. I think it's an urgency issue, it's a  
24 matter of time. I think Jim and I agree on the fact that we  
25 would rather get our arms around how we can make this thing

1 work from a funding standpoint than doing more surveys.

2 CHAIRMAN JACKSON: Okay.

3 I think at that point, we will draw this part of  
4 the briefing to a close and ask the NRC staff to come  
5 forward. Let me thank each one of you for a very  
6 informative set of presentations.

7 MR. MATTIA: Thank you.

8 MR. FLETCHER: Thank you.

9 CHAIRMAN JACKSON: Thank you.

10 Mr. Thompson, please proceed.

11 MR. THOMPSON: Chairman Jackson, thank you very  
12 much. I guess I wish I had this morning's meeting rather  
13 than this afternoon's meeting.

14 CHAIRMAN JACKSON: Why, because we're too nice?

15 [Laughter.]

16 MR. THOMPSON: Well --

17 CHAIRMAN JACKSON: Be very careful.

18 MR. THOMPSON: Be kind.

19 [Laughter.]

20 MR. THOMPSON: You've already heard the  
21 presentations from the steel industry concerning the  
22 consequences they face when licensees lose radioactive  
23 material and their comments on the staff's action plan. In  
24 addition, you have heard the concerns of the representatives  
25 of the state radiation control programs and their

1 recommendations for improving accountability of devices and  
2 their comments on the staff action plans and, obviously,  
3 there are wide ranges of suggestions and some important  
4 elements that we certainly have considered. I think each of  
5 those items that they've talked about we have certainly  
6 considered.

7 I guess I would want to respond to kind of one  
8 issue and that dealt with the issue of Russian roulette. I  
9 think the concerns there, and they are not to be downplayed,  
10 that there are devices out there that can be deadly and have  
11 a sufficient amount of radiation that could cause death,  
12 those are not the devices that we're talking about today in  
13 the generally licensed devices. Those are specifically  
14 licensed devices. For example, the one in Texas that was  
15 the large cobalt device, it was a specifically licensed  
16 device and they are under a regulatory scheme for which both  
17 us and the agreement states have inspection procedures,  
18 they're licensed, we know about those devices ahead of time.

19 But that is not to minimize the concerns that even  
20 if they are stolen and they end up in a scrap metal area, I  
21 don't want to minimize that there are concerns by both us  
22 and the states and anyone who deals with those. But that is  
23 not the type of devices that we are looking at.

24 The staff has evaluated the recommendations of the  
25 NRC agreement state --



1 CHAIRMAN JACKSON: Excuse me a second.

2 Did you have a comment on that?

3 COMMISSIONER McGAFFIGAN: No.

4 MR. THOMPSON: But he concurs fully with that  
5 argument.

6 [Laughter.]

7 CHAIRMAN JACKSON: Let's let him finish his  
8 opening comments.

9 COMMISSIONER McGAFFIGAN: I just want to get  
10 educated on where -- on cesium 137, how much can it be  
11 before it is specifically licensed or before a specific  
12 license is required? How many, how many Curies do you get  
13 and does it depend on the device and the amount of shielding  
14 it has or how does that work?

15 MR. THOMPSON: It is that but I'll turn to, I  
16 guess --

17 CHAIRMAN JACKSON: For coherence here, I think  
18 that it's important that we finish and then --

19 COMMISSIONER McGAFFIGAN: I just was trying to  
20 follow up on that point.

21 CHAIRMAN JACKSON: No, I understand.

22 COMMISSIONER McGAFFIGAN: Public health and  
23 safety. My understanding from Rita Aldridge about a year  
24 ago is that some of these devices that are generally  
25 licensed mishandled can be a problem and I just wanted to

1 refresh my memory about that.

2 MR. THOMPSON: And we did have one proposed  
3 rulemaking, you may recall, that was a device that we looked  
4 at if an individual put their head in a particular area,  
5 that could be a high level radiation. I don't remember that  
6 being a deadly, a lethal dose but that's just my current  
7 memory.

8 COMMISSIONER MCGAFFIGAN: I'll come back to it.

9 MR. THOMPSON: In any event, we've looked at the  
10 NRC agreement state working group that examined the issue of  
11 control over and accountability for the devices that we've  
12 talked about. The staff submitted an action plan, including  
13 its evaluation of the working group's recommendations to the  
14 Commission on November 26, 1997, SECY 97-273.

15 That paper was submitted to the Commission in the  
16 context of our efforts to be both risk informed and  
17 consistent with the resources that were available to the  
18 staff and our operating plan and the budgets that we had and  
19 that was the options that we laid out to the Commission and  
20 we tried to take that in what we would say a risk-informed  
21 to look at the devices that would pose the largest risk and  
22 address those first.

23 I would now like to introduce Dr. Don Cool,  
24 Director of the Division of Industrial Metal and Nuclear  
25 Safety. Dr. Cool will discuss the staff's action plan for

1 improving the NRC control over and the licensees'  
2 accountability for licensed devices. Also at the table with  
3 me today are Dr. Carl Paperiello, Director of NMSS; John  
4 Lubinsky who served as the NRC co-chair of the working  
5 group; and Frank Congel from AEOD.

6 I would now like to turn the program over to  
7 Dr. Cool unless there are some other questions.

8 CHAIRMAN JACKSON: Before Dr. Cool launches into  
9 his presentation, can one of you give an answer succinctly  
10 to Commissioner McGaffigan's question.

11 DR. COOL: I will try to do so.

12 In fact, you will find that there is a range of a  
13 couple orders of magnitude in terms of the Curie quantity of  
14 cesium where it could be generally licensed or specifically  
15 licensed. The maximum Curie quantity in a generally  
16 licensed device is something on the order of 5 Curies, a  
17 relatively significant quantity of material.

18 You will find lots of sources considerably smaller  
19 than that also in specific licenses. So in fact, at the  
20 moment, the regulatory regime is not a neat and tidy box  
21 based on activities or quantities of materials. And, in  
22 fact, there are a number of devices which, depending upon  
23 how they have been packaged or sold, may be specifically  
24 licensed in some circumstances or may, under other  
25 circumstances or very slight modifications, obtained and

1 used under a general license.

2 CHAIRMAN JACKSON: Can you lay out for the  
3 Commission what the criteria are, the main ones that you  
4 really use in determining whether something should be a  
5 specifically licensed device, generally licensed?

6 DR. COOL: The criteria for generally licensed  
7 devices and the types of tests that it would have to meet  
8 are laid out in Part 31, which is the actual laying out of  
9 the general license for devices. And the associated  
10 criteria and tests that have to be passed for a specific  
11 source or a specific kind of device in Part 32.

12 CHAIRMAN JACKSON: Can you list for us today what  
13 some of those are?

14 DR. COOL: Actually, I am going to turn, if you  
15 don't mind, to John who can give you, I think, probably a  
16 little more accurate description of some of those tests in  
17 Part 32.

18 MR. LUBINSKY: As Don was saying, in Part 32 is  
19 the criteria for what would meet the general licensing  
20 requirements. It is very much a performance-based  
21 requirement in that it does not look at actual Curie content  
22 but looks at the normal use conditions as well as accident  
23 conditions and puts a limit on a maximum dose, maximum dose  
24 being 500 millirem during normal use to any worker and then  
25 under accident conditions where it is unlikely, such as

1 explosions or fires, where it could be as high as 15 rem to  
2 an individual from a generally licensed device.

3 Many of these fall much lower than this limit. As  
4 Don was saying, there are some in the 5 Curie range for  
5 cesium that are under a general license. The performance  
6 testing would look at actual conditions of use that are  
7 provided by the manufacturer of the device.

8 The manufacturer would come in, request that the  
9 device be allowed or authorized for use under a general  
10 license, would demonstrate what type of testing conditions  
11 that the device has gone through so that it would meet the  
12 normal conditions of use and the performance-based criteria  
13 of the 500 millirem during normal use and the 15 rem.

14 CHAIRMAN JACKSON: Commissioner.

15 COMMISSIONER MCGAFFIGAN: I may be -- if -- is an  
16 accident condition one of those scrap folks who is shredding  
17 the thing somehow and you have a 5 Curie source, it's  
18 generally licensed, and whatever they do to get a car down  
19 to a couple handfuls of metal, that happens to that thing by  
20 accident. Would there then be a significant exposure to  
21 potentially the workers in the yard?

22 Again, I am trying to follow up on Hugh's comment  
23 at the outset that there is no public health and safety  
24 risk.

25 MR. THOMPSON: I didn't say "no," I said,

1 "deadly." I thought --

2 COMMISSIONER McGAFFIGAN: Oh, okay, deadly.

3 MR. LUBINSKY: The rule itself does not talk about  
4 loss and the consequences associated with loss. It talks  
5 about accident and uses a, for example, explosion or fire.  
6 Under those types of conditions, you are talking about  
7 internal as well as external exposures. And the scenarios  
8 typically for an accident condition would include unshielded  
9 material but typically when a manufacturer provides this  
10 information to us, the scenario does include information  
11 that there has been a release of the material.

12 So therefore the time frame in which the material  
13 is released to the public before there is some type of  
14 intervention is taken into consideration. When you get into  
15 areas where it is in the public domain and could be at the  
16 scrap facility where the container is broken open or that  
17 the dispersion has occurred of the material, the time may be  
18 more than what the manufacturer originally estimated in the  
19 dose assessment that he provided to us.

20 You do need to look at the fact that, as many have  
21 said already, the devices are labeled and they have some  
22 identification. So when this does occur, after damage  
23 occurs, it is likely that someone is going to see this  
24 labeling and take the proper precautions to keep that time  
25 frame down. But once it reaches the public domain, there is

1 nothing to say that it would definitely be identified in a  
2 timely manner.

3 CHAIRMAN JACKSON: Yes, Dr. Cool?

4 DR. COOL: If I could add one thing? I think it  
5 may be important to note that an accident condition is  
6 something that is recognized and you go through the  
7 analysis. So you assume that an explosion has occurred and  
8 therefore you have some recognition and then perhaps some  
9 activities dealing with the event.

10 An alternate scenario which is, I don't believe,  
11 John, correct me if I'm wrong, part of the nominal process,  
12 is assuming that it is undetected and an accident occurs, a  
13 shredding or other material, where there is no detection and  
14 no information and things just progress without recourse.  
15 The accidents are assuming that I've got it here and  
16 something happened here, the steel overflowed and melted it  
17 or an explosion occurred which ripped it apart or various  
18 other activities.

19 CHAIRMAN JACKSON: What you're really saying is  
20 that your "design basis accident" assumes a certain  
21 accountability program and a certain accountability for the  
22 device.

23 DR. COOL: That's correct.

24 CHAIRMAN JACKSON: If it propagates in the public  
25 domain that no longer exists.

1 DR. COOL: That's correct.

2 CHAIRMAN JACKSON: Let's go down the line here.

3 Commissioner Dicus?

4 COMMISSIONER MCGAFFIGAN: We will eventually let  
5 them make their presentation.

6 COMMISSIONER DICUS: Well, maybe.

7 Back to your opening comment, and I tend to  
8 perhaps agree that at least we are not dealing with sources  
9 that we don't anticipate, an acute deadly exposure, but  
10 that's not to say that we could not have exposures that have  
11 a health effect, potential health effect and potentially a  
12 serious health effect so we need to make that distinction.  
13 We are dealing with sources that can in fact do that.

14 MR. THOMPSON: That's right. And we are dealing,  
15 I think, in the neighborhood of just NRC a half a million  
16 sources. Of a half a million sources, there are very few  
17 numbers that reach this level like that.

18 We talked about I think in the working group there  
19 may be something on the order of 25,000 sources that are of  
20 concern, at least as kind of identified by the working  
21 group. So it goes -- this is just from NRC and of course  
22 you have heard, I guess, the presentation today. A number  
23 of the detections really deal with NORM and NARM type  
24 material. So if you look at the types of devices and the  
25 likes of detections out there, there are millions of these



1 types of devices, both in agreement states and NORM type of  
2 activities. So it is not a small subset of issues that we  
3 are addressing.

4 COMMISSIONER DICUS: And one more, addressing the  
5 issue of labeling. And it was brought up I think by the  
6 industry as well, that sometimes the labels simply are  
7 obliterated. Some of these devices are in industry, in  
8 plants, have been there for years and, for any number of  
9 reasons, there's not a label on it anymore. I've  
10 encountered those devices.

11 I think one of the issues that was brought up is  
12 to look at labeling and are we, in fact, labeling them well  
13 enough or in a manner that probably would sustain some  
14 pretty rough handling, which some of them are designed to  
15 do. But maybe not the labeling.

16 CHAIRMAN JACKSON: Commissioner Diaz.

17 COMMISSIONER DIAZ: Yes, very quickly. This is  
18 purely driven by the intention of putting Mr. Thompson in  
19 deep waters.

20 [Laughter.]

21 COMMISSIONER DIAZ: And no other intention.

22 But looking at prevention, if a specifically  
23 licensed device, significant or possibly deadly, you know,  
24 radiation doses can get into the main stream, like the Texas  
25 one, what does that say about prevention for those that are

1 not so well kept and labeled?

2 MR. THOMPSON: I'm sorry, you mean for --

3 CHAIRMAN JACKSON: His basic point is that, you  
4 know, to have a focus on prevention and you talked about  
5 specifically licensed devices which presumably have a better  
6 accountability program associated with them. And if they  
7 can end up like --

8 COMMISSIONER DIAZ: That's right. I don't think  
9 we have a program for which we can have criminal acts that  
10 we can prevent, even where we have resident inspectors --

11 CHAIRMAN JACKSON: I don't think that's his point.

12 COMMISSIONER DIAZ: No. I'm talking about  
13 probably of occurrence and the consequences and how to  
14 prevent them. And you wouldn't prevent a specifically  
15 licensed device to enter public life even if it would be  
16 very large and therefore that says that the other generally  
17 licensed devices needs to have proportionally maybe larger  
18 preventions measure because they don't have the same  
19 benefits of registration and accountability and so forth.

20 CHAIRMAN JACKSON: Let me put it crudely.

21 MR. THOMPSON: That will get me.

22 COMMISSIONER DIAZ: That was intentional.

23 [Laughter.]

24 CHAIRMAN JACKSON: If you can't prevent a  
25 specifically licensed device from ending up in a situation

1 where you can have a potentially -- an exposure that has  
2 public health and safety consequence, what confidence should  
3 we have that the generally licensed devices --

4 MR. THOMPSON: You don't. And that's exactly  
5 right and, in fact, when you look at our analysis with  
6 respect to what we would be able to prevent, we don't  
7 guarantee and in fact we say you cannot guarantee a hundred  
8 percent.

9 If we implement this program perfectly, you know,  
10 with every device, there are still devices. The  
11 registration, some will slip through the system by human  
12 error, not by intent. Or there may be, as we heard  
13 Dr. Lipoti talked about there will be some that will find  
14 themselves disguised, even though they may have been  
15 registered. People may be willing to --

16 CHAIRMAN JACKSON: I still think you're missing  
17 the point.

18 COMMISSIONER DIAZ: You're missing the point.

19 MR. THOMPSON: I certainly am. I'll take my  
20 lessons later.

21 CHAIRMAN JACKSON: Let me make sure he's finished  
22 now.

23 COMMISSIONER DIAZ: No, I'm finished.

24 CHAIRMAN JACKSON: Okay, Commissioner McGaffigan?

25 COMMISSIONER MCGAFFIGAN: Just on this issue of --

1 and I have been looking in Parts 31 and 32, they're long, to  
2 find this 500 millirem and 15 rem standard -- but the -- is  
3 that an ICRP recommendation? Is that unique to this  
4 country? How do we differ from other countries in defining  
5 specific versus general licensed devices?

6 DR. COOL: That is something that we best maybe  
7 sit down in your office because it will take a long period  
8 of time.

9 What you will find is that there are considerable  
10 variations internationally. You will find that a  
11 registration or a registration style program is used by  
12 folks like the U.K. for lots of devices, including a lot of  
13 the things that we specifically license, including  
14 radiography. You will find that the control of these  
15 devices on the other end of the spectrum in many countries  
16 the IAEA has as member states simply doesn't exist at all  
17 and we have been part of efforts with IAEA to try and  
18 establish sort of minimum programs that some of those member  
19 states should deal with.

20 In fact, internationally, the control of these  
21 sources, the trafficking is a term that has been used  
22 occasionally, is a significant and ongoing condition, not  
23 just because of the breakup of the former Soviet Union but  
24 because, in fact, sources continue to move around.

25 CHAIRMAN JACKSON: I think though this is too much

1 Washingtonian-itis, because I thought the question was, how  
2 do we arrive at our standards and to what degree do they  
3 report with existing international standards?

4 DR. COOL: Our standards were, in fact, derived  
5 well before ICRP-26. The dose for a member of the public,  
6 you noted we quoted was 500 millirem. Since then, Part 20  
7 has been revised to 100 millirem. So that no longer  
8 comports with the international recommendations.

9 The accidental dose of 15 goes back I'm not sure  
10 how far, you will find a range of values in terms of  
11 accident scenarios and what might or might not be  
12 acceptable, some of them above, some of them below.

13 COMMISSIONER MCGAFFIGAN: So this is somewhat off  
14 the subject but is there any intention to ever go back and  
15 bring this all into conformity with ICRP recommendations?  
16 Because, you know, in all honesty, when we talk about  
17 decommissioning, we cite ICRP. I think we have a hard time  
18 picking and choosing among ICRP. And when we are in a  
19 dispute with another agency, we say ICRP is good and when  
20 it's inconvenient to us or maybe there's backfitting issues,  
21 I don't know. But we don't know in and change down to 100  
22 millirems. I don't know whether that would make some of  
23 these devices that are specifically licensed -- generally  
24 licensed today specifically licensed right off the bat. So  
25 is that part of an overall program in the staff's view at

1 some point?

2 MR. THOMPSON: That's part of our risk assessment  
3 approach. As I recall, part of the whole purpose was to  
4 look at the devices that are generally licensed now and  
5 decide which of those should be specifically licensed or  
6 come under a registration program, as well as there may be  
7 some devices we specifically license right now and, when we  
8 do a risk assessment on them, that they don't need to be  
9 specifically licensed. Again, that's the effort to have our  
10 resources applied on those types of devices based on the  
11 risk that they present.

12 CHAIRMAN JACKSON: Why don't we move along.

13 MR. THOMPSON: Don?

14 DR. COOL: Okay. I guess now I come back and say,  
15 good afternoon, Chairman Jackson and Commissioners.

16 [Laughter.]

17 DR. COOL: I will go directly to slide two and we  
18 will try to move through this with all expeditious speed. I  
19 think you are probably very familiar with the background.  
20 This has been ongoing for a long period of time.

21 We will go ahead and go to slide three.

22 What I want to touch on briefly today is the  
23 activity associated with orphaned devices and you have  
24 already heard from Dr. Lipoti a number of the activities  
25 going on. Briefly, what we are doing in the risk assessment

1 arena in response to the Commission's strategic setting  
2 issues and then the registration program itself.

3 Go ahead and go to slide four.

4 As you have already heard and which we agree, a  
5 number of folks have identified the orphan source issue as a  
6 significant issue. We have been pleased to work with the  
7 conference in their efforts and the meeting which already  
8 took place and we will be participating in a meeting next  
9 week with the group as they come off, start this particular  
10 process to work through that activity.

11 In addition to that, there is a longstanding  
12 relationship both programmatically and in our emergency  
13 response arena in terms of dealing with situations where a  
14 source is identified. There are relationships with the  
15 Department of Energy and understanding of the kinds of  
16 questions that we will ask and then get the Department of  
17 Energy involved in terms of whether or not there is, in  
18 fact, a measure of safety if a device is identified in the  
19 public domain, if there is a method for dealing with that  
20 within the existing regulatory structures in state or  
21 another licensee, whether or not there is someone who may  
22 wish to have that device.

23 In fact, CRCPD for a number of years has had a  
24 list of people who are interested in using a device and that  
25 has proved useful on a number of occasions where something

1 is identified and we are able to get them that has and them  
2 that wants together. And then situations where all of that  
3 fails where we have been successful in engaging the  
4 Department of Energy to provide assistance in picking up and  
5 actually providing radiological support for surveys or  
6 control of sites, for taking and dispositioning sources,  
7 particularly americium sources. Those activities are  
8 ongoing.

9 We recently had an exercise called Lost Source  
10 Exercise up in our Region I that included EPA, several  
11 states. It was very useful in identifying who is going to  
12 call whom, under what circumstances. And we continue to  
13 pursue a whole variety of those sort of situations.

14 CHAIRMAN JACKSON: So to what extent -- you are  
15 basically saying everything is being handled on an ad hoc  
16 basis at this point?

17 DR. COOL: At this point, we are operating on an  
18 ad hoc basis.

19 CHAIRMAN JACKSON: And you mentioned here the  
20 agencies are continuing to formalize the procedures in an  
21 MOU between the agencies. Does such an MOU really exist?

22 DR. COOL: The draft of the MOU was sent to the  
23 Department of Energy. We received in late December the  
24 Department of Energy General Counsel's markup of that  
25 memorandum. We are working with folks in our general



1 counsel's office now to see whether or not we can move  
2 forward, take the next step and actually have an MOU that  
3 can be signed. So there is --

4 CHAIRMAN JACKSON: What kind of time line are  
5 you --

6 DR. COOL: -- actually draft language being moved  
7 back and forth.

8 CHAIRMAN JACKSON: Are you operating on a time  
9 line to have that done by a certain point?

10 DR. COOL: I would like to have that done in a  
11 matter of a few months. Unfortunately, that has been going  
12 on a lot longer than I would like it to be.

13 CHAIRMAN JACKSON: I understand all that but you  
14 don't have an agreement with the Department of Energy or any  
15 other agency at this point in terms of a time by which you  
16 need to have this formalized?

17 DR. COOL: That's true.

18 CHAIRMAN JACKSON: Yes, Commissioner.

19 COMMISSIONER DICUS: Dr. Lipoti was somewhat  
20 critical of this and indicated that perhaps there is still a  
21 passing of the buck among the federal agencies, which I  
22 think goes to the heart of some of the Chairman's questions.  
23 And likewise, you are talking about with DOE, which is  
24 accepting some of these sources for disposal, but EPA is  
25 likewise involved.

1           Where are we with that? Do you agree with  
2 Dr. Lipoti's assessment?

3           DR. COOL: I, in fact, agree with Dr. Lipoti's  
4 assessment. There are a number of circumstances where it  
5 takes a while for the federal family to figure it out and  
6 that is a frustrating process, having been on a number of  
7 those calls at all hours of the day or night, because a lot  
8 of times what happens is we've got a source, nobody knows  
9 what the source is. Something has alarmed or someone has  
10 found something.

11           In that kind of circumstance, if you go through  
12 the Federal Radiological Emergency Response Plan activities,  
13 EPA is in the lead. If it is identified as being AEA  
14 material, then NRC would have the federal lead. Recognizing  
15 in all of that, in fact, the state is in the forefront and  
16 we are moving back and forth.

17           So I agree with Dr. Lipoti. It can be very  
18 frustrating as it all sorts out. Sometimes it is not  
19 terribly satisfying and sometimes it takes a relatively  
20 protracted, perhaps days, period of time.

21           COMMISSIONER DICUS: Or maybe weeks.

22           A followup question then, in the MOU, and what we  
23 are working, is it designed to correct this problem, that we  
24 get the call until the federal family figures out who is in  
25 the lead? Somebody is going to go get the source and get it

1 out of the public domain or assist the state in getting the  
2 source on a temporary basis to get it out of the public  
3 domain?

4 DR. COOL: In fact, no, not completely. This  
5 memorandum is to formalize the relationship and process  
6 steps by which we can get DOE to accept a source. It does  
7 not deal with some of the procedural issues and  
8 jurisdictional issues between EPA, NRC, DOE --

9 CHAIRMAN JACKSON: How do you intend to get at  
10 that?

11 DR. COOL: I actually think the best approach is  
12 where CRCPD is going right now and that is exactly, and I  
13 agree again with Dr. Lipoti's comment that she made to you  
14 about the fact that the relationships and jurisdictional  
15 issues is one of the things they have asked the working  
16 group to identify on early on in the process to try and  
17 provide some better definition.

18 CHAIRMAN JACKSON: Yes.

19 COMMISSIONER DICUS: Okay, one last. I'm sorry.  
20 And then you've got the floor.

21 COMMISSIONER McGAFFIGAN: No, that's fine.

22 COMMISSIONER DICUS: If CRCPD seems to be the  
23 instrument that is going to work, try to work this problem  
24 out I guess for the federal family and then, of course, with  
25 the states as well, who is funding them to do that? I mean,

1     how is that being done? Is that the funding the EPA is  
2     providing?

3             DR. COOL: EPA has provided funding to the CRCPD.  
4     And I don't know the extent or duration, at least for this  
5     year, for this group to be considering these and try to pull  
6     together some program.

7             MR. LIPOTI: Some of the 200,000 goes into next  
8     year.

9             CHAIRMAN JACKSON: Okay.

10            COMMISSIONER MCGAFFIGAN: Can I clarify this issue  
11     of getting out of public domain? Because in talking to  
12     Mr. Mattia last week in my office, it sounds like when  
13     oftentimes whatever fed decides they are in charge finally  
14     shows up, they will do a survey and say, not a danger, your  
15     problem, see you later because there isn't an imminent  
16     danger to public health and safety. And then this person is  
17     left with the courts and maybe -- how do you deal with these  
18     folks in the scrap yards who aren't our licensees.

19            Say it's an Atomic Energy Act material but it's a  
20     very small device. Is it a possible answer under this MOU  
21     you are dealing with DOE on that DOE would say, this is too  
22     small for us to accept and it's up to the finder to dispose  
23     of it?

24            How -- I'm asking whether this MOU is going to  
25     solve the problem of the small scrap person.

1 DR. COOL: The MOU is not based so much on the  
2 size of the source as a series of questions associated with  
3 whether or not there are control mechanisms or mechanisms to  
4 place it under control. I think you would probably find the  
5 answer would be at least somewhat unsatisfying.

6 CHAIRMAN JACKSON: So the point is, why is there  
7 not effort to address what happens on the ground, you know,  
8 in terms of jurisdiction, who is going to take it, who is  
9 going to do what? You know, why are you working on that MOU  
10 that doesn't address those issues? Is there, you know, a  
11 reason for that?

12 MS. CYR: Well, there is an authority question, I  
13 think, in some circumstances. It is not clear what NRC's  
14 authority is in all circumstances to take possession of  
15 material.

16 CHAIRMAN JACKSON: No, no, no, I understand that.

17 MS. CYR: I mean, and DOE may be in the same  
18 circumstance.

19 CHAIRMAN JACKSON: That's Commissioner  
20 McGaffigan's point.

21 MS. CYR: I mean, they are working on an MOU in  
22 the constraints of what has sort of been their traditional  
23 operation in terms of where DOE is willing to take it.

24 COMMISSIONER MCGAFFIGAN: The point I'm trying to  
25 make really, and I think it came up earlier, if there are

1 authority issues either for us or DOE and therefore  
2 legislation required, I think that has to be identified as  
3 an option so that just we and DOE or EPA, whoever is  
4 involved, we get the authorities clear in statute and then  
5 maybe the problem gets a little easier.

6 But at the moment, writing MOUs to limited  
7 authorities, my fear is you will expend a lot of energy and  
8 not have actually produced a satisfying result, which I  
9 think is the word you were using just a moment ago,  
10 Dr. Cool.

11 COMMISSIONER DICUS: One more thing --

12 MS. CYR: That's not to say there's not value in  
13 clarifying those circumstances in which you can at least get  
14 that much done. I mean, there may be additional efforts  
15 that need to be undertaken.

16 COMMISSIONER DICUS: I just -- I think it's the  
17 last comment on this slide.

18 CHAIRMAN JACKSON: Oh, my god.

19 [Laughter.]

20 COMMISSIONER DICUS: Well, we have 11 more  
21 minutes.

22 I hear a lot, you know, and we've said it, a lot  
23 of comments about the bureaucracy and they're important and  
24 we do have some legal issues to get over. But let's not  
25 lose sight of the fact that we have to protect the public's

1 health and safety and we have got to cut through the  
2 bureaucracy to be sure we do that, in the final analysis.

3 MR. THOMPSON: And I think that is, in case, what  
4 happens. In fact, often we will show up, even though EPA is  
5 the nominal lead for those activities, and work with the  
6 state and used to -- NRC, I think, used to be much more  
7 proactive on unidentified sources. EPA called us and said,  
8 you have no authority, you know, we will be the responding  
9 authority for unidentified sources, and that goes back to  
10 the issue on the authority where that has really been an  
11 impediment at times.

12 MR. CONGEL: Could I add just a little? I believe  
13 the issue is primarily most difficult when it comes to the  
14 actual cleanup in getting rid of the source. I want to  
15 emphasize that we have been involved with a number of  
16 significant events ranging from spills of tritium to sources  
17 in the environment and we have never had any difficulty in  
18 getting cooperation from the other federal agencies,  
19 particularly DOE and EPA and DOT if it's a transportation  
20 device -- or accident, rather, when it involves the public  
21 health and safety.

22 The difficult part comes afterwards when the  
23 situation is stabilized and then we try to find out who is  
24 going to be responsible or who can take care of the cleanup  
25 or disposal. Then we get into the issues that we're talking

1 about. But there have been a number of remarks made here  
2 that say, well, while they sort out who the responsibility  
3 is, I would like to make it clear that that never, during my  
4 experience --

5 CHAIRMAN JACKSON: In the imminent phase, it's not  
6 a problem.

7 MR. CONGEL: It's not a problem. There's an  
8 enormous amount of cooperation and I think Hugh was actually  
9 getting at it.

10 I, really, and the other agents don't care whether  
11 it's identified, unidentified, licensed or not. Let's make  
12 sure that we have the public health and safety first.

13 I have never had a difficulty with that and  
14 they're not even the stereotype Washingtonian bureaucrats  
15 saying, well, you know, that's yours. No. DOE provides rap  
16 teams, any capabilities that we ask for, very quickly. But  
17 the next step is -- so I just want to make sure we focus on  
18 what I really think is the issue but not the first step.

19 CHAIRMAN JACKSON: I think it strikes me from what  
20 you have already said that there needs to be some  
21 clarification in two baskets. One has to do with just what  
22 is the MOU meant to clarify and cover and provide that  
23 information for the Commission. But more importantly or as  
24 importantly is to then clarify, you know, in a follow on  
25 way, you know, where the problems are that relate to what



1 we've been discussing here in terms of interagency  
2 jurisdiction, et cetera. And what, in your best judgment  
3 needs to happen in order to bring clarity to it, if it's  
4 legislation or if it's just further negotiation between the  
5 agencies or whatever.

6 We need to understand that because, to have this  
7 discussion in a vacuum, risks making us as frustrated as  
8 some of the other people who, you know, we've already heard  
9 from because it doesn't help us in terms of decisionmaking.

10 MR. THOMPSON: Right.

11 CHAIRMAN JACKSON: Okay, why don't you go on.

12 DR. COOL: Okay, slide five. We will talk briefly  
13 about the risk assessment that my group has undertaken.  
14 This is a fundamental reexamination of the activities  
15 conducted in byproduct material, that is, Parts 30 through  
16 39 of the Code of Federal Regulations. It includes these  
17 kinds of devices. Radiography, well logging, irradiators,  
18 all of those kinds of activities.

19 I have asked the group to step back, look at the  
20 various kinds of systems, you could put that in quote, or  
21 radiography is a system. They have identified something on  
22 the order of 40 or so systems, gauging devices being a  
23 system. I asked them to take a look at that in terms of a  
24 number of risks, doses to members of the public, doses to  
25 workers, doses under accidental conditions, doses on it

1 getting out somewhere and some consideration of what, for  
2 lack of a better way to place it, is the outrage factor.  
3 That is, if something actually happens with that device,  
4 what is the reactivity level that either the NRC or the  
5 federal family or the states then use in terms of trying to  
6 deal with those devices and the situations that occur in the  
7 environment.

8           There is a fair amount of actual data which is out  
9 there because these devices have been used over a long  
10 period of time. Asked them to take a look at that, the  
11 various data that is in our NMED, Nuclear Materials Event  
12 Database, and other databases, to use quantitative criteria.  
13 Some probabilistic risk assessment or similar sorts of  
14 methodologies which have been done for certain kinds of  
15 systems, not completely in the way that you would expect a  
16 reactor situation to be. And qualitatively in terms of  
17 other kinds of processes and examinations.

18           I have asked them to have that process completed  
19 by the end of this fiscal year and my expectation would be  
20 that then come next fall we would be able to provide for you  
21 the results of that and some potential recommendations about  
22 whether or not there would -- this analysis suggests changes  
23 to the kinds of touches that we do, the kind of license,  
24 piece of paper or registration or other type of program, the  
25 kinds of things that you do in terms of inspection and

1 followup and the system as a whole.

2 CHAIRMAN JACKSON: How does this play into the  
3 options that you have laid out in the paper before the  
4 Commission?

5 DR. COOL: This plays out as being the  
6 recommendations or specifically moving and starting to lay  
7 the basis of a registration program is to lay the framework  
8 for that which I believe will be a bin that the risk  
9 assessment will suggest a number of things, including a  
10 number of things that are now specifically licensed might  
11 well fall into. Because if the fundamental issue is  
12 accountability, and that will certainly be the case if it is  
13 a gauging device and is specifically licensed.

14 If that is the appropriate approach for dealing  
15 with that kind of material and accountability is a key or  
16 the major component in dealing with the risk, then perhaps  
17 it ought to be in that bin and this would lay the framework  
18 and, if we were moving forward in rulemaking, would already  
19 be underway in terms of developing and establishing that bin  
20 into which we could in some organized manner add other  
21 groups.

22 CHAIRMAN JACKSON: Have you got a comment?

23 COMMISSIONER DICUS: On this risk assessment, and  
24 I've got, I think, maybe three questions, quick ones, on it.  
25 I'll ask them now. If you want to wait and answer them a

1 few slides on --

2 CHAIRMAN JACKSON: Why don't you go ahead.

3 COMMISSIONER DICUS: The questions are, during the  
4 risk assessment, and I am talking about now only on  
5 generally licensed devices, this aspect we have under  
6 discussion at the moment, our definition of risk in the  
7 agency is a probability times a consequence. How are you  
8 getting a handle on consequence for the generally licensed  
9 devices?

10 And prefacing, before you answer, I don't know  
11 that we know what all the consequences are. How are you  
12 going to deal with risk when part of the formula may be  
13 missing?

14 DR. COOL: Through a combination of modeling and  
15 the events that have been seen. We are taking the fact that  
16 there have been smeltings of material. I am asking them to  
17 take a look at and try to model, and this is kind of a  
18 deterministic worst case approach, because there is not a  
19 good way to do some maybe perhaps more satisfying or more  
20 accurate consequence of doses to individuals if you shred it  
21 and if it got out into the domain.

22 So it is a combination of using actuarial and  
23 experienced data where that is available along with  
24 deterministic or modeled kinds of approaches where that  
25 isn't available.

1                   COMMISSIONER DICUS: Okay, and what are the  
2 complications, particularly when a source is in the public  
3 domain? In some cases, I think in one case a source was  
4 found in some gravel with no idea how long it had been  
5 there, no idea how many people may have walked by, been  
6 involved, or even how it got there and how many people might  
7 have been exposed. So there is this tremendous unknown. It  
8 makes it very difficult to do this and where we simply have  
9 to walk into it knowing this.

10                   The second part, the second question is, our  
11 database is incomplete. I am using the nice word. It is,  
12 in fact, flawed. And the data we have may represent a  
13 fraction of what has happened. How are you going to deal  
14 with that.

15                   DR. COOL: And the answer to the first question  
16 is, yes, I agree with you. There is an enormous  
17 uncertainty. There is no mathematical construct other than  
18 to try and at least set boundaries on worst cases and  
19 otherwise to try and deal with that.

20                   The answer to the second case, yes, the database  
21 is undoubtedly flawed. There have been other things that  
22 have undoubtedly happened. The number of occurrences, while  
23 that may change probabilities to some extent, may or may not  
24 change the range of uncertainty that you have in terms of  
25 the potential consequences.

1 CHAIRMAN JACKSON: If you're looking at  
2 consequences, are you looking at worker protection?

3 DR. COOL: Workers, members of the public,  
4 routine, accidental --

5 CHAIRMAN JACKSON: And are you looking at  
6 environmental contamination?

7 DR. COOL: And environmental issues, the material  
8 gets outside of the facility.

9 COMMISSIONER DICUS: And then are --

10 DR. COOL: I have asked them to consider all of  
11 those.

12 COMMISSIONER DICUS: Are you looking at protection  
13 of property?

14 DR. COOL: I have asked them to specifically look  
15 at that, which goes above and beyond the kinds of analysis  
16 we've done previously; that's correct.

17 CHAIRMAN JACKSON: Commissioner McGaffigan?

18 COMMISSIONER MCGAFFIGAN: Protection of property,  
19 economic consequences, the melt that occurs and having to  
20 deal with all the carloads of material that sit outside  
21 these steel mills. Is that a consequence you are looking  
22 at?

23 DR. COOL: Yes, sir.

24 CHAIRMAN JACKSON: Okay. Why don't you move on.

25 DR. COOL: The next slide, which would be slide

1 six, is something that we have presented previously.

2 Under NRC jurisdiction in the generally licensed  
3 device realm, there are close to 500,000 devices. As you  
4 can see, nearly three-quarters of those constitute tritium  
5 exit signs and a variety of other percentages, just by way  
6 of background.

7 If I can go ahead and go to the next slide --

8 CHAIRMAN JACKSON: From a radiological standpoint,  
9 what is the largest activity source here or category source?

10 DR. COOL: you're going to find the largest  
11 activity devices in that piece of the pie that says fixed  
12 and portable gauges. There may be a few sitting over in the  
13 other category.

14 The exit signs will have fairly high numbers in  
15 terms of Curies of tritium but, radiologically speaking, the  
16 dose that can be delivered, that does not have the same  
17 consequence as the cesium devices.

18 CHAIRMAN JACKSON: Okay.

19 DR. COOL: Go ahead to slide seven.

20 I have tried to lay out schematically where we  
21 would be in this process. I think perhaps it is intuitive,  
22 obvious, but it is sort of interesting to look at it in the  
23 event tree, fault tree kind of format where presuming you've  
24 got it under control and then potential for losing it,  
25 whether or not it gets in or out of the public domain or

1 whether it is continuing to sit in the facility. Does it  
2 get in the scrap stream or get buried or some other  
3 consequence? Is it detected? Does that second safety net  
4 that Dr. Lipoti referred to catch it or not?

5 You have already heard the quoting of a lot of  
6 statistics on some of these end points in terms of number  
7 detections and number of melts.

8 A registration program, the kinds of things that  
9 everyone has been discussing here, is influencing the  
10 percentages you would put on that very first branch.  
11 Whether or not they have it accounted for and know where it  
12 is or not, that's where all of the influence of this  
13 particular program goes into in terms of that very first  
14 piece of the process.

15 CHAIRMAN JACKSON: Yes.

16 COMMISSIONER DICUS: On this chart, I think you  
17 have an event tree missing and that is what about loss of  
18 source integrity before smelting? And that has happened  
19 once.

20 DR. COOL: Um-hum.

21 COMMISSIONER DICUS: I think you have to put that  
22 in, in this event tree.

23 DR. COOL: That and, in fact, a number of others  
24 if I wanted to get to a greater level of detail, I agree  
25 with you.



1 CHAIRMAN JACKSON: Well, I'm only assuming --

2 DR. COOL: This was for illustrative purposes to  
3 indicate where registration influences the process.

4 COMMISSIONER DICUS: This is not the event tree --

5 DR. COOL: This is not the ultimate event tree.  
6 It is not intended to be the ultimate event tree. You are  
7 very right, there are lots of other things in there, lots of  
8 other branches.

9 COMMISSIONER DICUS: Given that clarification, we  
10 can go on.

11 DR. COOL: The current program, in fact, requires  
12 a whole series of things. It requires the vendor to provide  
13 the general licensee with a copy of the regulations. The  
14 regulations require testing, reporting, some recordkeeping.  
15 Vendors are required to notify the NRC of the distribution  
16 of their devices in answer to the question which  
17 Commissioner McGaffigan asked.

18 Furthermore, general licensees are supposed to be  
19 reporting transfers and disposal of their devices. They are  
20 not charged fees and we don't ever interact with them except  
21 under a circumstance where something has shown up and we are  
22 backtracking. So we are in event response mode.

23 Based on the information which comes into and is  
24 recorded in my general license database, we in fact have a  
25 database which we put in all of the reports from the vendors

1 and those reports which we receive of transfers. It's  
2 fairly apparent to me that we are not getting all the  
3 transfers and otherwise because of the number of reports  
4 that we get from the user saying I have transferred this or  
5 that is a very small number. We get some but it clearly  
6 does not match up with, I would believe, a priori, are the  
7 things going on out there.

8 Nevertheless, that database does exist and, in  
9 fact, has on a number of occasions proved very useful in  
10 terms of backtracking. One of the cases on point, which I  
11 think at least some of you are probably familiar familiar  
12 with, was in fact the shredding of an americium source and  
13 DOE was very useful, picked up the source, took it down and  
14 found the serial number. We were able to back track through  
15 the manufacturer and the general license database to the  
16 licensee.

17 CHAIRMAN JACKSON: Is there an enforcement  
18 mechanism to use against the general -- general licensees  
19 who fail to properly transfer or dispose of their devices?

20 DR. COOL: There is. And, in fact, the case I  
21 just cited is in that process right now.

22 CHAIRMAN JACKSON: Yes?

23 COMMISSIONER DICUS: On this database that may be  
24 a little flawed but do we ever review it for indications of  
25 program trends and weaknesses beyond what you've just

1 discussed?

2 MR. CONGEL: We are in the process of updating  
3 that. I was going to say something a few minutes ago when  
4 you mentioned it but Don kindly answered for me.

5 But the program itself is still in an evolutionary  
6 stage and we are still probably, I would say, about five  
7 years into a very strong updating and improvement ranging  
8 from incorporating in a better way the agreement states'  
9 information to working with our counterparts in Carl's  
10 office for a better quality assurance and quality control of  
11 the data.

12 CHAIRMAN JACKSON: It took you five years into --

13 MR. CONGEL: I certainly didn't want that to sound  
14 like -- maybe it's Washington-it is again. But it was about  
15 five years ago that I would say there was increased  
16 attention being paid on it. And there have been a number of  
17 subsequent and consecutive improvements and feedbacks on  
18 this database.

19 COMMISSIONER DICUS: But it's still a troublesome  
20 area?

21 MR. CONGEL: There's parts of it where we're  
22 learning and, indeed, we have had our exchanges of info.

23 CHAIRMAN JACKSON: Commissioner McGaffigan?

24 COMMISSIONER MCGAFFIGAN: Could you use this to do  
25 what Mr. Mattia proposed, to send off to the -- not all the

1 tritium sites but the 48,000 gauge folks that were in that  
2 previous chart, send off a letter saying, do you have the  
3 device still? Is it up to that?

4 MR. CONGEL: Imperfect and yes. It would in fact  
5 be the base line upon which we would start this process.

6 And, in fact, there was a survey that was  
7 conducted back some --

8 MR. LUBINSKY: 1989-1990 time frame.

9 MR. CONGEL: Which resulted in some significant  
10 adjustments, some information that was found. You could  
11 start that process. There are pros and cons to surveys.

12 You go through the OMB clearance process and  
13 certainly that could be done. Part of the process is if you  
14 were doing that with the explicit intent of moving into a  
15 registration program, you would in fact be engaging in an  
16 activity which the General Counsel, at least at this point,  
17 has indicated to me would be de facto a registration program  
18 and which I really should have done rulemaking for prior  
19 to --

20 MS. CYR: As long as you're doing a one-time  
21 survey. And you also have a proposed rule on the street  
22 that constitutes a registration program and I think you've  
23 got to discuss how that differs from whatever you might be  
24 proposing otherwise, too.

25 There was a rule proposed in 1991 to create a

1 registration program which was never finalized. But it is  
2 still out on the street as a proposed rule.

3 CHAIRMAN JACKSON: Fascinating.

4 MS. CYR: It does not cover fees, which is a big  
5 issue, and it specifically said it would not address the fee  
6 issue. But you need to sort of, I think --

7 CHAIRMAN JACKSON: Thank you.

8 Now, how does that -- what is the story there with  
9 that rule and how does that play against your options that  
10 you've laid out in this paper?

11 DR. COOL: Thank you for jumping me head about  
12 three pages.

13 To quickly answer your question, in fact, one of  
14 the alternatives that we have been exploring is the extent  
15 to which the revival and, perhaps, publication of a piece of  
16 that rule which has already been proposed would move more  
17 quickly than the base line which was laid on this paper of a  
18 rulemaking package.

19 That rule did, in fact, propose a requirement  
20 which would have allowed us to go and do a registration  
21 program. That rule did not get to some of the technical  
22 issues such as labeling or fees or some of these other  
23 things. So it is not a one-to-one match with that which the  
24 working group has recommended and otherwise but may, in  
25 fact, be a mechanism.

1 We are having a long chat with Stu Treby now.

2 CHAIRMAN JACKSON: It's not in the paper we have  
3 before us.

4 DR. COOL: That's correct.

5 MS. CYR: It was proposed to register everybody, I  
6 think, wasn't it?

7 DR. COOL: It was a proposal to register all  
8 devices.

9 MR. THOMPSON: That, again, was one of the rules  
10 held in abeyance because of the resource levels to implement  
11 such a rule and there, again, comes the tension that we've  
12 had in agencies where we have declining resources, we had  
13 looked to the areas that had the highest risk to public  
14 health and safety, not we -- we were not focused on  
15 protecting property at that time and therefore that  
16 rulemaking has been held in abeyance since then to do the  
17 working group study and other things with the appropriate  
18 risk focus on it.

19 CHAIRMAN JACKSON: Yes, Commissioner.

20 COMMISSIONER DICUS: You heard the industry say  
21 that there may be a greater role for vendors and their  
22 responsibilities. Do you have any comments on that?

23 DR. COOL: One of the things we looked at very  
24 hard was whether you could do this by placing that burden on  
25 the vendor. There are certainly some pros in terms of not

1     needing as resource intensive program here. There are also  
2     some cons in terms of placing the vendor essentially in  
3     double jeopardy of having to report on that to whom he is  
4     also trying to sell some other jurisdictional issues.

5             The working group, in fact, during their  
6     discussions, examined that particular issue and the working  
7     group also concluded that that was not the most favored  
8     approach. But, yes, we have looked at that. One of the  
9     other alternatives was that but there were some significant  
10    cons to placing it all out there.

11            CHAIRMAN JACKSON: Commissioner McGaffigan and  
12    then we're going to move on.

13            COMMISSIONER MCGAFFIGAN: Two very quick  
14    questions.

15            The 1991 rulemaking, did it come out of this '89-  
16    '90 survey that you mentioned? Is there a history there  
17    where you did a survey, you discovered a problem and then  
18    you started a rulemaking that we never finished?

19            MR. LUBINSKY: As Don was saying, we have been  
20    looking at this a long time and that was part of it. There  
21    was a survey and there were studies performed that said,  
22    let's go forward with this rulemaking. A lot of the  
23    estimates on resource requirements as far as to follow up on  
24    licensees who do not respond were initially based on that  
25    1990 survey. It included about 3,000 general licensees and

1 it was a voluntary survey. It was not a mandatory survey.

2 That started the rulemaking process or helped  
3 support the rulemaking process in '91 and also since we're  
4 going through the history, after the rulemaking was put on  
5 hold in '93, the Commission came back to us and said, you  
6 put the rule on hold and what are you going to do now.

7 That was when we came back and put the work group  
8 together to look at this from a national perspective and the  
9 basis for the registration was based on a lot of the same  
10 detail in that initial rule.

11 COMMISSIONER MCGAFFIGAN: And then this issue of  
12 labeling that comes up in the working group report and you  
13 say you agree with and all that. I'm looking at danger of  
14 putting the rules in front of a commissioner here but 3251  
15 says at the moment each device bears a durable, legible,  
16 clearly visible label or labels approved by the Commission  
17 which contain a clearly identified and separate statement,  
18 et cetera.

19 Why is that not enough to make sure that these  
20 devices are today, you know, couldn't we by reg guide or  
21 something say what we mean by --

22 CHAIRMAN JACKSON: Have we been implementing this?

23 COMMISSIONER MCGAFFIGAN: Clearly visible, it's  
24 durable. Durable means it's got to be etched or whatever?

25 MR. LUBINSKY: We have been interpreting the word



1 "durable" the same way we have looked at the criteria for  
2 doses in 3251. That is, durable during the normal and  
3 likely conditions that you will see during use and likely  
4 accident conditions.

5 Of course, during the explosion, you would not  
6 expect any labeling to survive. But as part of that, it did  
7 not look at what happens when this gets into the public  
8 domain because that is not an expected condition or was not  
9 an expected condition for this rulemaking.

10 CHAIRMAN JACKSON: At that time.

11 MR. LUBINSKY: So therefore durable and legible  
12 would be during normal use. If it's used in a laboratory  
13 facility where it sits on a tabletop all day, you're not  
14 talking about etching or embossing labeling for it to meet  
15 20 years' of use in that type of environment.

16 CHAIRMAN JACKSON: I think we need to just go on.

17 COMMISSIONER MCGAFFIGAN: Would it be a new rule  
18 to go back and clarify, in light of what we learned, durable  
19 now should be interpreted as follows? Or does that require  
20 a rulemaking or does that require just a statement?

21 CHAIRMAN JACKSON: Maybe Karen can answer that.

22 MS. CYR: I think it probably would require -- we  
23 would have to look exactly at what you're trying to do but I  
24 think you really are probably changing the basis under which  
25 your rule was adopted and you probably would have to go

1 through some kind of a notice and comment period.

2 CHAIRMAN JACKSON: I think I am going to dictate  
3 that the last slides be gone through without any questions  
4 so we can come back.

5 DR. COOL: And then we'll come back and do it in  
6 one fell swoop.

7 The next slide on the registration program is up  
8 on the screen. An ideal registration program which is the  
9 basis of the staff's recommendation would still be a process  
10 by which the requirements would be in the regulations.  
11 There would be some additional requirements. We would go  
12 back and look at some of the durability issues, probably  
13 specifically require serial numbers and other things to be  
14 part of that so you could have a better tracking if you  
15 found it. A number of those sorts of things.

16 The process would require that the licensee  
17 register the device with the NRC and that there would be an  
18 annual touch which would include both an accountability, we  
19 believe you have X number of devices. Come back to me and  
20 say, yes, we also have X number of devices, we have touched  
21 and inventoried them on a quarterly, monthly basis which  
22 would have to be specified in the regulations, we have seen  
23 them, they are labeled, the labels are present and clearly  
24 visible, intact, the sorts of things that are required  
25 there, and the submission of the fee.

1           To get to one of the questions and, I hope, read  
2   your mind perhaps, at least a little bit, I was not terribly  
3   happy with the cost either but it is driven by your  
4   assumptions about how far and how many you are going to  
5   chase in the initial years of the program. Our assumption  
6   is that we would be trying to follow up on roughly 15  
7   percent and went through and did the mathematics associated  
8   with that. It has the overhead built in, which is used by  
9   the comptroller's office in terms of dealing with the fee  
10   billing applications and at least some measure of where you  
11   might be in terms of allocation, enforcement and other sorts  
12   of management activities if you assumed after a few years of  
13   this you had it settled down that you were maybe doing only,  
14   say, two or three percent that you were having to do follow  
15   up and you then looked at the resource that would be needed  
16   to do that, you would find that the price would be something  
17   on the order of \$200.

18           It scales very much to the kind of resource needed  
19   to do the initial file -- followup and accountability with  
20   those devices which, obviously, will be the greatest during  
21   the first year or two of conduct. That's why you have a  
22   number which is disparate from the kind of numbers that you  
23   see in the states which have been running programs which  
24   have, for the most part, gotten over that hurdle.

25           The process would, in ideal circumstances, be

1 following up, are you still there, do you still have them,  
2 where did it go. For perhaps some of them, contractor  
3 support in terms of skip trace, you're not there, those  
4 sorts of things.

5 Next slide, please.

6 In terms of the startup activities, the rulemaking  
7 in order to get that process into place and the coordination  
8 with the states and the upgrade and development of the  
9 automated system, the computer system necessary to support  
10 this. The general license database is an old mainframe  
11 system, not terribly useful but a good starting point upon  
12 which we would then generate those. That's more or less a  
13 fixed cost without regard to necessarily specifically the  
14 kinds of licensees you would be touching.

15 We can go ahead to the next slide on  
16 implementation activities then.

17 You do the registration. Once you had the  
18 rulemaking in place, you could run the actual letters, send  
19 them out, get it back, entered into the database on a --  
20 what I have listed on the slide as a scale factor, about a  
21 third of an FTE and \$67,000 or so per thousand. So figure  
22 out the number of licensees you want to touch and that's  
23 roughly the cost. The dollars associated with probably a  
24 contractor doing a lot of the maintenance and running of the  
25 computer system rather than having my staff people doing all

1 of that input itself.

2 And then the followup activities in terms of going  
3 out, resolving discrepancies, doing reactive inspections on  
4 the order of 1.5 FTEs per thousand licensees that are out  
5 there. Again, somewhat of a scaling factor.

6 The paper provided alternatives based on the  
7 resources available that are within the operating plan and  
8 budget which I presently have to do the job right, that is  
9 to touch them and do the followup would mean that we could  
10 get those licensees who have cesium on the order of 500  
11 millicuries or more. If you didn't want to do the job  
12 right, you could for the same resource touch a larger  
13 quantity in terms of mailing it out and getting it back.

14 I think you have heard from a number of folks and  
15 I think I would agree that that is not a preferred approach.  
16 It doesn't go all the way down the line; it stops half way.

17 From there, alternative three is an alternative  
18 which picks up the other cesium devices that were in the  
19 working group report. What we have tried to do is provide  
20 you with a unit cost factor such that if we wanted to go  
21 with yet further resources and touch all of the devices that  
22 were in the working group recommendation, you could go  
23 through and very quickly do that. That would be on the  
24 order of eight or nine FTEs and associated dollars  
25 multiplied out on a per licensee basis. The working group

1 recommendations would encompass something on the order of  
2 6,000 licensees and on the order of 25 or so thousand  
3 devices.

4 With that, I'm done with the presentation and  
5 would be glad to try and answer some additional questions.

6 CHAIRMAN JACKSON: Let me ask you a couple of  
7 questions.

8 Are there currently specific licensees who are not  
9 physically inspected?

10 DR. COOL: No, but some of them have inspection  
11 frequencies of five to seven years.

12 CHAIRMAN JACKSON: Okay. So, de facto?

13 DR. COOL: De facto, they are not touched for  
14 relatively long periods of time.

15 CHAIRMAN JACKSON: If that's the case, would they  
16 be candidates for registration program, also?

17 DR. COOL: I personally believe that they would  
18 be, without pre-jumping my registration program. Those are  
19 the kind of folks that sort of look and smell like a lot of  
20 these kinds of devices and, a priori, if this is the right  
21 kind of approach for them, what's good for the goose should  
22 also be good for the ganders.

23 CHAIRMAN JACKSON: And you mentioned the startup  
24 costs in terms of registration, automated registration  
25 system. Since there are automated registration systems that

1 currently exist in several states, is there an opportunity  
2 to go the other way, to scale up, you know, their systems  
3 for use by the NRC and could that afford us some time saving  
4 and cost saving?

5 DR. COOL: Perhaps. The fact that we have a  
6 database sort of indicated to us that scaling up and  
7 bringing that existing database into the client server  
8 system of the Agency was perhaps yet the quickest system  
9 because that data already exists and if you matched fields  
10 you could --

11 CHAIRMAN JACKSON: But did you look at it? Did  
12 you look at it, that possibility?

13 DR. COOL: I don't know that the group explicitly  
14 looked at trying to buy one of the existing state systems.

15 MR. LUBINSKY: During the working group we talked  
16 about that possibility. The one concern there was that most  
17 of the states were dealing with a smaller number of  
18 licensees and devices. We're talking about on the order of  
19 500,000 devices, so you're talking about a large number of  
20 records. Where the states were dealing with much smaller  
21 databases.

22 CHAIRMAN JACKSON: I agree. But that's separate  
23 than an actual examination of what they have to look at  
24 whether there is some scalability.

25 MR. LUBINSKY: While the examination was looking

1 at the scalability from the work -- this was during the  
2 working group. It wasn't believed that we could actually  
3 just scale those up because of the life cycle requirements  
4 that we're looking at within our C-type systems and by the  
5 time we finish going through building that system up to what  
6 we really need, it would be more cost effective to convert  
7 the general license database over to a client server system.

8 CHAIRMAN JACKSON: Did you actually go through  
9 developing user requirements for the use to which -- for the  
10 kind of database system and automated registration system  
11 that we would need?

12 MR. LUBINSKY: We are going through now and we  
13 have developed a draft statement of work for what the  
14 requirements would be for the new system and that would be  
15 more from an efficiency standpoint of performing the  
16 mailings and collecting the data and updating the system.

17 CHAIRMAN JACKSON: So I would argue to you that  
18 until you have developed those user requirements and then  
19 you've in fact template overlaid them to what states, say  
20 look at the larger states, have, you really can't answer the  
21 question of whether or not the system is sufficient?

22 DR. COOL: Not completely. Correct.

23 MR. THOMPSON: That's correct and, Chairman, also  
24 we would certainly coordinate with the CIO because there may  
25 be other commercial off-the-shelf products.



1 CHAIRMAN JACKSON: That was going to be my next  
2 piece. Exactly.

3 And then for the last question I have, if I look  
4 at alternative two, there doesn't appear to be any incentive  
5 for general licensees under that alternative to register.  
6 Is there some hidden incentive, such as the threat of  
7 enforcement action, against those who don't register if  
8 devices are found as a result of incidents?

9 DR. COOL: As we mentioned, I thought in the  
10 paper, part of what we would be looking at would be  
11 enforcement alternatives, potential incentives which would  
12 apply, irrespective of whether you were trying to do a  
13 complete followup or the incomplete followup.

14 CHAIRMAN JACKSON: You may have mentioned it in  
15 the paper but you didn't mention it this afternoon.

16 DR. COOL: I'm sorry.

17 In fact, one of the things that we have discussed,  
18 in fact in fairly great depth, with Jim Lieberman, Director  
19 of Office of Enforcement, is the kind of approaches we could  
20 take and the possibilities of automating or simplifying an  
21 enforcement process to minimize our resources to take  
22 specific actions. And, in an incentive basis, whether or  
23 not we would wish to defer enforcement if they were  
24 cooperating with us and gaining accountability. Almost  
25 perhaps an amnesty program for the first year or two to try

1 to get them captured before bringing in the penalties which  
2 would make it somewhat of an incentive to get the job done  
3 now and get them captured, as opposed to us find you a  
4 couple of years down the road.

5 CHAIRMAN JACKSON: Okay, Commissioner Dicus.

6 COMMISSIONER DICUS: You have answered most of my  
7 questions so I have very few more. More in the form of  
8 comments.

9 One thing, you addressed it in your oral  
10 presentation, it was not in the paper, the fact that  
11 starting up the program and initially going out to find  
12 where there are problem areas will be a spike FTE load but  
13 that should go down. And that was not reflected in the  
14 paper which caused us some concern.

15 I don't agree with your cutoff of what sources,  
16 devices should be looked at in terms of the Curie content.  
17 I think it should be on a broader basis and I think you have  
18 heard significant reasons why today that I feel that way and  
19 perhaps others as well.

20 That's not to say, with all the questions and  
21 comments we've had on the product that we got and had to  
22 review, that I don't appreciate the work that's been done  
23 and I want the staff to recognize that. I think from my  
24 perspective I think the work has been too limited in its  
25 scope and what was considered important and perhaps some of

1 the bases used for your analysis or your points to get from  
2 A to B might not have been as appropriate to use or as clear  
3 or as well founded as they should have been and I have  
4 several recommendations or comments. You will probably see  
5 those when the vote on this issue, when my vote on this  
6 issue surfaces.

7 Just let me say that I think in the reactor side  
8 of the house, we have a very aggressive regulatory program  
9 and, certainly, on the materials side of the house we have  
10 areas that we have aggressive regulatory programs but I  
11 think we have areas where our regulatory program is not as  
12 aggressive and perhaps not as effective as it should be.  
13 And clearly from the data that we have documented, the  
14 places where members of the public or even radiation workers  
15 are more likely to receive an unnecessary or even  
16 overexposure of radiation is in the materials side of the  
17 house and not in the reactor side of the house.

18 I am not saying necessarily that, gee, we don't  
19 have to worry about reactors; certainly we do. But  
20 materials safety in my view is certainly no less important  
21 than reactor safety and I think the Commission's regulatory  
22 actions should reflect this and I think perhaps you've heard  
23 that today.

24 That's all I have.

25 CHAIRMAN JACKSON: Commissioner Diaz?

1 COMMISSIONER DIAZ: Yes, I think what I needed to  
2 say has mostly been said by Commissioner Dicus.

3 I would like to, you know, hammer on it. I think  
4 when I came here, it seems like a long time ago, one of the  
5 very first things that we had was a meeting on these issues.  
6 At the time, I was full of innocence. Now I am full of  
7 scars. And what I have not seen in that time is that this  
8 issue has progressed with the same speed and the same due  
9 consideration to the difference on public risk that I think  
10 it has.

11 I believe we do great work when we have localized  
12 sources and try to become risk informed. Distributed  
13 sources are a completely different issue and it is kind of  
14 tentative or not really fully accountable to be risk based,  
15 I think. I think risk informed will still leave us room to  
16 make determinations that propose a much more aggressive  
17 program. I think this is a case which is obviously needed  
18 and I would recommend that the staff stops for at least a  
19 brief period of time being totally concerned with resources.

20 We would like to hear, at least I would like to  
21 hear, the best of the stuff and then allow the Commission to  
22 look at the resource issue because I think this has been  
23 here too long. It is an issue that can be better managed  
24 and it requires a very aggressive program and my vote will  
25 reflect that.

1 CHAIRMAN JACKSON: Commissioner McGaffigan.

2 COMMISSIONER MCGAFFIGAN: A couple of questions.

3 The staff, on this issue of penalties for lost  
4 devices, in the paper it basically agrees. But then it  
5 says, for specific licensees, we will consider increasing  
6 the civil penalties. How quickly is that consideration  
7 going to be done and do you agree with the numbers in the  
8 working group report with regard to how much they need to be  
9 ramped up to actually be a deterrent?

10 DR. COOL: I changed to the enforcement policy and  
11 I suspect that Mr. Lieberman is somewhere in the audience  
12 and might be able to answer this a little more quickly.  
13 Could probably move fairly quickly.

14 The numbers in terms of having the penalties more  
15 accurately correspond to or have some measure of  
16 correspondence to the costs of disposing the device, I  
17 think, are reasonable kinds of numbers to approach. There  
18 were some things thrown out today that we would have to go  
19 back and think about in terms of where those penalties  
20 resided that were suggested by some other folks and while I  
21 personally as an individual liked the idea of having a use  
22 for those within the agency in terms of funding, I think the  
23 general counsel has already indicated present legislation  
24 doesn't allow me to.

25 COMMISSIONER MCGAFFIGAN: I'm not trying to get

1 into that point.

2 The second point is generally licensed devices.  
3 Here you say we won't do it until we get around to the  
4 implementation of the registration program because we have  
5 to notify general licensees that it may be coming. Why? Is  
6 that -- why couldn't we do it faster rather than wait  
7 potentially to 2000 or 2001 to tell the generally licensed  
8 folks we're going to hold you -- you mentioned the case  
9 earlier where we are indeed fining somebody the small fine  
10 for having lost control of their devices and they ended up  
11 being shredded. But why can't we -- why can't we put a  
12 notice out sooner that we're going to take this seriously  
13 and here are the fines that may accrue to you as a general  
14 licensee?

15 MR. THOMPSON: I don't believe there is a reason  
16 we can't do that. We'll have to work with the general  
17 counsel and go through the process --

18 MS. CYR: Right. I mean, the requirements are  
19 that they're supposed to notify you if they transfer it and  
20 an obligation to dispose of it. I think that there are ways  
21 within the existing framework even without new rules that  
22 there would be some basis to take civil penalties. I think  
23 what they were focusing on here was to the extent there was  
24 a failure to register a followup in that circumstance until  
25 you run through, that was what you were trying to penalize,

1 you would have to wait until you had a --

2 COMMISSIONER MCGAFFIGAN: But right now, it's  
3 not -- I'm not sure what the rule requirement is but we  
4 don't like people losing control even of generally licensed  
5 devices. We don't like them ending up in the wrong place.

6 The final issue and I'll try to be short, the fee  
7 issue. Right now, you're spending, between research and  
8 NMSS, some amount of money in this area, a million, million-  
9 and-a-half a year --

10 MR. THOMPSON: No --

11 COMMISSIONER MCGAFFIGAN: Including research and  
12 FTEs and everything?

13 MR. THOMPSON: I think we're closer to one FTE.  
14 Consistent with what we got in the budget, it's about one  
15 FTE and we found about \$300,000, so that --

16 COMMISSIONER MCGAFFIGAN: And is that partly  
17 driven by this question of equity? I mean, at the moment,  
18 there is no -- we don't have a registration program so there  
19 is no general licensee to hit so it's the reactor folks or  
20 whatever who end up paying -- gets into overhead and we  
21 charge it to everybody.

22 Does that partly motivate why it's hard for the  
23 staff to find the additional resources? And is this a  
24 candidate if we ever did take some stuff out of the fee base  
25 until 2001, when we have a mechanism to apply fees? Is this

1 the sort --

2 MR. THOMPSON: I'll let Paul speak but I'll speak  
3 first.

4 It was not a significant issue with me. What was  
5 a significant issue with me was the impact on other programs  
6 that we had when the FTE competition came in and NMSS was  
7 held down and had other programs they had to do, they had to  
8 do because they had to do licensing, they had to do some of  
9 those activities.

10 It wasn't the fact that it was an issue of equity  
11 on five or 10 FTEs worth of work. It was that we couldn't,  
12 in the competition, we weren't able to argue at that time to  
13 the Commission that this program was more important than  
14 other programs.

15 CHAIRMAN JACKSON: I would like to thank each  
16 participant who is still here for the information you have  
17 provided to us in today's briefing. It is clear, as you  
18 heard, that the time to address this issue is very much  
19 overdue and it is my hope, because the ball is also in the  
20 Commission's court at this time, that the Commission will  
21 come to a decision that will address not only the very real  
22 health and safety concerns related to the current lack of  
23 control we are experiencing with these sources based on a  
24 risk perspective, but also on the economic impact in an  
25 environmental context that these lost devices are having on



1 the unlicensed individuals or companies who inadvertently  
2 come into possession. But it's one that has to be rooted in  
3 our fiscal and legal realities and that's all part of our  
4 decisionmaking.

5 But, in the meantime, I think it is important to  
6 provide some clarity to the Commission on just what the MOU,  
7 this interagency MOU, is meant to accomplish. But also  
8 where there are issues that need to be addressed and perhaps  
9 elevated or dealt with in the legislative arena.

10 And then also for the edification of the  
11 Commission, I think it would be useful for us to understand  
12 what the 1991 rule dealt with and what you plan to  
13 potentially extract from that relative to the options that  
14 are before us. If you could do that within a week, I would  
15 appreciate it.

16 Thank you very much. We're adjourned.

17 [Whereupon, at 4:48 p.m., the briefing was  
18 concluded.]

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CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON MATERIAL CONTROL OF  
GENERALLY LICENSED DEVICES  
PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Wednesday, January 21, 1998

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Chris Cichall

Reporter: Mark Mahoney



*United States  
Nuclear Regulatory Commission*

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**Improving NRC's Control Over, and Licensees'  
Accountability For, Generally  
and Specifically Licensed Devices  
(SECY-97-273)**

**Dr. Donald A. Cool, Director  
Division of Industrial and Medical Nuclear Safety  
Office of Nuclear Material Safety and Safeguards**

**January 21, 1998**

## **BACKGROUND**

- ❖ **The Commission has been concerned about loss of control of generally licensed devices for more than 10 years.**
- ❖ **An NRC and Agreement State Working Group examined the issue and provided recommendations for improvements to current regulations.**
- ❖ **In developing an action plan to address control of generally and specifically licensed devices, the staff considered:**
  - ❖ **The information provided in the Working Group report.**
  - ❖ **The Commission's direction to consider the feasibility and cost effectiveness of registration programs in lieu of current licensing and inspection programs.**
  - ❖ **The Commission's direction to reexamine the applicability of risk-informed, performance-based regulation for materials licensees.**

## **STAFF'S ACTION PLAN**

- ❖ **The Staff's action plan addresses the following issues:**
  - ❖ **Continuing to work with the States on orphaned device issues.**
  - ❖ **Performing a risk assessment of all activities currently regulated under 10 CFR Parts 30-36 and 39.**
  - ❖ **Development and implementation of a registration program for certain general licensees.**

## **ORPHANED DEVICE ISSUES**

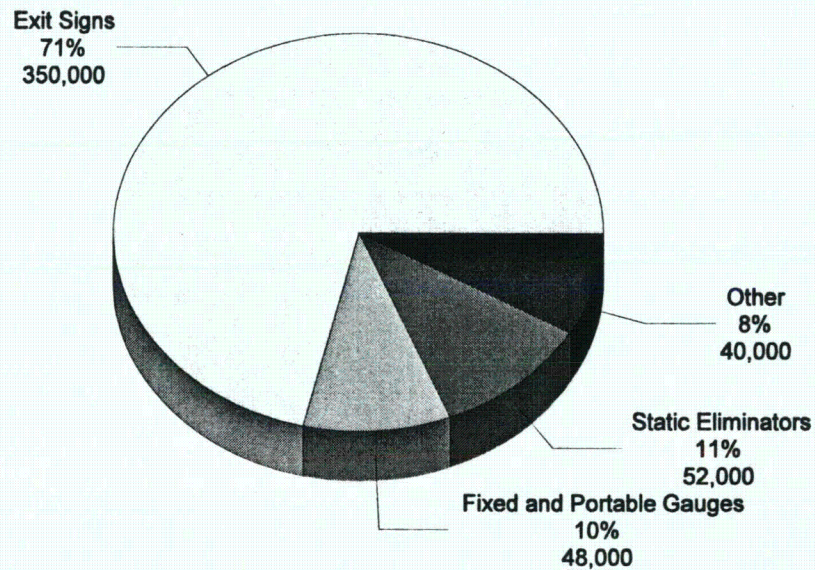
- ❖ **Stakeholders identified orphaned devices as a concern and the Working Group recommended that NRC ensure that all orphaned devices are handled and disposed in an appropriate manner.**
- ❖ **The staff is working with the Conference of Radiation Control Program Directors and U. S. Environmental Protection Agency on development and implementation of a program for identifying orphaned devices, identifying persons that will accept the devices, and funding for disposal of the devices. The first meeting between the agencies was held June 1997.**
- ❖ **The staff is continuing to ensure that orphaned devices are identified and disposed properly. This has included requesting assistance from the U. S. Department of Energy (DOE) for disposal of devices that present a threat to public health and safety. Cooperation between NRC and DOE has ensured that orphaned devices have been identified and removed from the public domain. The agencies are continuing to formalize the procedures in a Memorandum of Understanding between the Agencies.**

## **RISK ASSESSMENT OF MATERIALS LICENSEES**

- ❖ **The risk assessment is being performed as part of NMSS overall effort to respond to the Direction Setting Issues identified as part of the Strategic Assessment.**
- ❖ **The purpose of the risk assessment is to develop a risk-informed, performance-based approach to the regulation of nuclear byproduct material that is currently regulated under 10 CFR Parts 30-36 and 39. The risk assessment will make use of qualitative and, to the extent possible, quantitative and probabilistic tools to identify and evaluate risks associated with nuclear byproduct materials systems.**
- ❖ **The results of the risk assessment will be alternatives for a graded regulatory approach based on risk. The alternatives will include the types and frequency of licensing and inspection activities for each category of licenses.**
- ❖ **A team of NRC and Agreement State staff is performing the risk assessment and held its initial meeting in June 1997 and expects to report its findings to the Commission Fall 1998.**

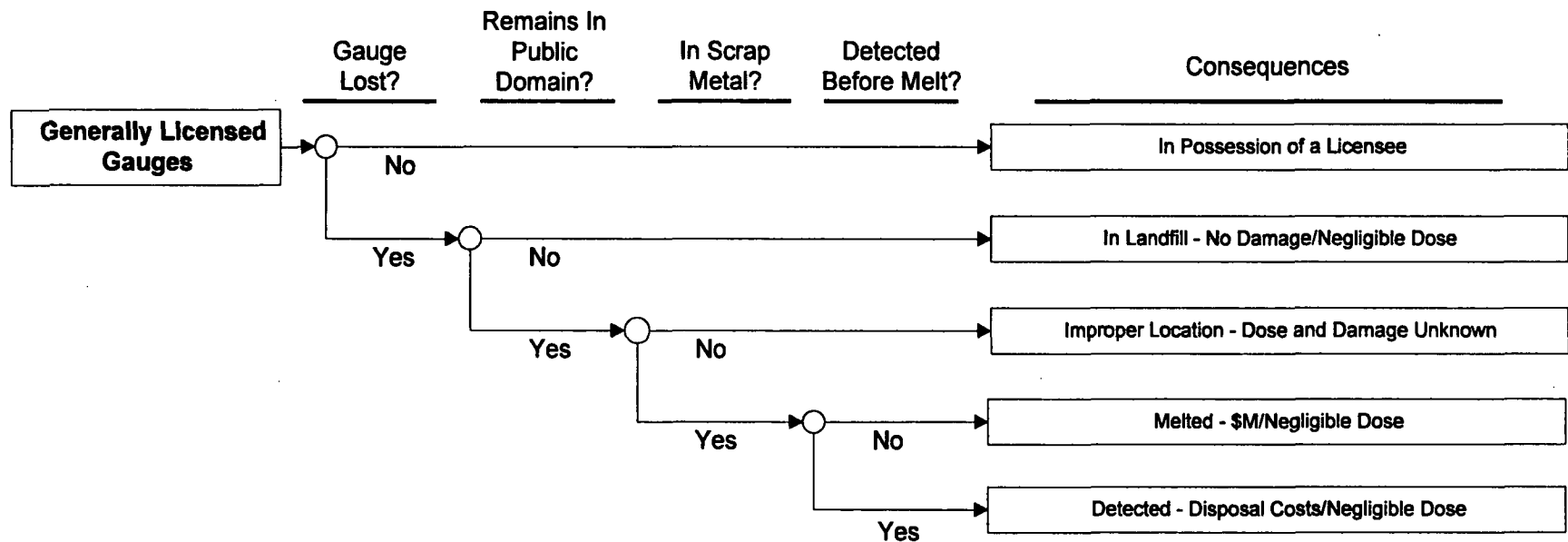
## TYPES OF DEVICES USED UNDER A GENERAL LICENSE IN NRC JURISDICTION

Approximately 490,000 Devices





## EVENT TREE FOR LOST GAUGES



## **CURRENT GENERAL LICENSE PROGRAM**

- ❖ **The current general license program includes the following:**
  - ❖ **All regulatory requirements (e.g., testing, reporting, and record keeping requirements) are included in the regulations. A copy of the regulations is provided to the general licensee by the vendor.**
  - ❖ **Vendors notify NRC of transfers of devices to general licensees.**
  - ❖ **General licensees are required to report transfers and disposal of devices.**
  - ❖ **General licensees are not charged fees.**
  - ❖ **NRC does not have initial nor routine contact with general licensees and NRC only performs inspections of general licensees in response to incidents.**

## **REGISTRATION PROGRAM**

- ❖ **An ideal registration program would include the following:**
  - ❖ **All regulatory requirements (e.g., inventory, testing, reporting, and record keeping requirements) for persons subject to registration would be included in the regulations.**
  - ❖ **Licensees would initially register each device with NRC, annual re-register each device, and verify accountability of the devices and compliance with the regulations. This would provide an annual reminder to licensees that they are subject to certain regulatory requirements and allow for an inventory of devices.**
  - ❖ **Costs of the registration program would be recouped through registration fees - \$480 per licensee annually.**
  - ❖ **NRC would follow-up with licensees to resolve discrepancies and perform reactive inspections in response to loss of material or reports of incidents. The licensees subject to the registration program would not be subject to routine inspections.**

## **START UP ACTIVITIES AND COSTS**

- ❖ **Rulemaking - would require 1.5 FTE and close coordination with the States.**
- ❖ **Automated Registration System and Guidance Development - would require 2.2 FTE and \$700,000:**
  - ❖ **The staff would develop an automated registration program to implement the registration program, using the structure and information from the existing general licensee database as a starting point.**
  - ❖ **The staff will develop guidance for users, vendors, and NRC staff on how to implement the registration program.**
- ❖ **The resources necessary for start up of the registration program (3.7 FTE and \$700,000) are not dependent on the number licensees subject to registration. The applicability (which licensees are subject to registration) can be easily amended.**
- ❖ **Start up activities would be accomplished over a three year period and the resources are included in the budget for FY 1998-2000.**

## **IMPLEMENTATION ACTIVITIES AND COSTS**

### **❖ Registration of Devices:**

- ❖ Would include registration of each device, annual re-registration, entry of user and device information into NRC database, user verification of accountability of the devices and compliance with the regulations, and collection of registration fees.**
- ❖ Implementation of the registration program would begin in FY 2001.**
- ❖ Resources for implementation of the registration program would be 0.33 FTE and \$67,000 for every 1000 licensees subject to registration.**

### **❖ Follow-up Activities:**

- ❖ NRC would follow-up with licensees to resolve discrepancies, would perform reactive inspections in response to loss of material or reports of incidents, and would take appropriate enforcement actions in response to inspection findings.**
- ❖ Follow-up activities would be performed in conjunction with implementation of the registration program in FY 2001.**
- ❖ Resources for implementation of the registration program would be 1.5 FTE for every 1000 licensees subject to registration.**

## **ALTERNATIVES**

- ❖ **Alternative 1 - Implementation of a full registration and follow-up program for 500 Licensees:**
  - ❖ **Licensees possessing devices containing  $\geq 500$  millicuries of Cesium-137.**
  - ❖ **15% of licensees (75 licensees) would require follow-up activities.**
  - ❖ **Program would require 1 FTE and \$34,000 and resources are included in the budget for FY 2001.**
- ❖ **Alternative 2 - Implementation of registration program for 3000 licensees but NRC would NOT conduct follow-up activities:**
  - ❖ **Licensees possessing devices containing  $\geq 10$  millicuries of Cesium-137.**
  - ❖ **15% of licensees (450 licensees) would require follow-up activities but NRC would NOT follow-up with these licensees.**
  - ❖ **Program would require 1 FTE and \$200,000 and resources are included in the budget for FY 2001.**
- ❖ **Alternative 3 - Implementation of a full registration and follow-up program for 3000 Licensees:**
  - ❖ **Licensees possessing devices containing  $\geq 10$  millicuries of Cesium-137.**
  - ❖ **15% of licensees (450 licensees) would require follow-up activities.**
  - ❖ **Program would require 5.5 FTE and \$200,000. However, only 1 FTE and \$200,000 are included in the budget for FY 2001. Therefore, an additional 4.5 FTE in FY 2001 is needed to implement this alternative.**

**Testimony before the U.S. Nuclear Regulatory Commission  
January 21, 1998  
presented by Jill Lipoti, Ph.D., Chair  
on behalf of the  
Conference of Radiation Control Program Directors**

**Subject: Improving NRC's control over, and licensees' accountability for, generally and specifically licensed devices**

The Conference of Radiation Control Program Directors (CRCPD) is very pleased that the Commission is considering action on the staff's recommendation to develop and implement a registration program for generally licensed (GL) devices. State programs have been involved for many years, and consider it a positive step forward for you to take action.

CRCPD supports the recommendations of the US NRC/Agreement State Working Group (WG) to increase oversight of GL devices, based on the consequences from loss of accountability of material.

CRCPD supports the staff's comprehensive risk assessment of all material currently in use to restructure the current licensing and inspection programs. However, the CRCPD recommends that the economic consequences of loss of control of the material also be a factor in determining whether increased oversight is warranted. It is not clear from the document whether health risk is the only criteria, but economic risk is a significant issue since those who bear the economic consequences are not the general licensees in most cases.

CRCPD recommends that the increased oversight program include all of the licensed sources identified by the WG, not just the Cs-137 sources containing at least 18.5 gigabecquerels (500 mCi). Specifically, the WG recommended Cs-137 above 370 MBq (10 mCi), Co-60 above 37 MBq (1 mCi), Sr-90 above 3.7 MBq (0.1 mCi), and all transuranics above 37 MBq (1 mCi). CRCPD believes that the registration program must include follow-up for those who do not register or who report missing devices.

The WG presented statistics showing that about 50% of the sources or devices found in metal scrap were Radium-226, and that the smeltings of radium and naturally occurring and accelerator produced radioactive material (NARM) sources was ranked second, behind Cs-137. This demonstrates the importance of regulating NARM sources to the same degree and at the same time as Atomic Energy Act (AEA) materials. CRCPD is ready to incorporate requirements for a registration program into the Suggested State Regulations so that licensing states will administer a registration program for GL devices containing NARM. CRCPD will also work with non-licensing states to encourage them to have a registration program for NARM sources.

Additionally, CRCPD would like to perform a risk assessment for NARM sources to rank them in a comparable manner to the NRC staff's ranking. That will provide justification for a

registration program for NARM GL sources. However, this may be fiscally constrained, and CRCPD may have to seek outside funding for this project.

CRCPD looks forward to working with the NRC in the parallel rulemaking process, so that the recommended changes will appear in the Suggested State Regulations.

The design of the automated system for registration should be large enough to include all of the sources recommended by the working group, not just a limited number like 500 or 3000, but the entire universe of 30,000 sources.

Implementation of the registration program will require more people with more resources, but the automated system should be able to handle most of the registrations. As the registration program takes effect, fewer resources will be needed to respond to the sources gone astray. These resources can be used to follow up with the licensees who have lost accountability. CRCPD believes that the initial effort will be so successful that NRC will find it to their advantage, as well as to the advantage of the scrap industry and the public, to expand the scope of the registration program.

In the discussion of the Selection of the Initial Registration Group, three options are listed which include 500 licensees with follow-up, 3000 licensees, and 3000 licensees with follow-up. There is no option that goes on to say how the universe of 30,000 licensees will be phased in. The discussion is limited to 4 fiscal years. The only reference to the larger universe of sources is with the FTE estimate of 22.9, which does not describe how these resources might be used over time. Are they all needed in one fiscal year? Or is this over 4 fiscal years as well? What fees would be projected if all 30,000 licensees were to be part of the registration process? Would there be an economy of scale, and could the fees be less than that projected for the smaller universe of regulatees?

CRCPD does not see any discussion of vendor responsibilities. The WG suggested some roles for vendors that include reporting of transfers, maintenance of record of transfers, providing recipients with disposal information, ensuring that devices are labeled properly.

CRCPD suggests convening a group of vendors to discuss what information should be provided with their sales literature. They should accurately inform potential customers that registration fees are required, that the material is radioactive, that there are costs for disposal of the source, that, in the event of an incident, there are substantial costs for cleanup, and there could be penalties for non-compliance.

CRCPD suggests that information should be provided to non-licensees who may come in contact with lost devices, since it will help ensure that GL sources will be removed from the public domain. CRCPD disagrees with the NRC that such guidance should not be issued until NRC has clearly defined the roles of the states, possessors of orphan material, and federal agencies. CRCPD believes that such information can evolve with greater specificity as roles are defined, but in the orphan source initiative, some public outreach materials are envisioned.



The cost allocation is an issue that CRCPD would like to comment on. CRCPD supports the concept of charging a registration fee. The figure of \$480 per licensee seems excessive, particularly since many licensees obtained their sources without taking this cost into account. The registration fee can have an unexpected consequence of causing licensees to reconsider how much they love their source and whether it makes good business sense for them to continue to own it. This could lead to many facilities getting rid of their unnecessary or underutilized sources in the first year. That is a good thing - as long as it doesn't increase the number of orphan sources that states have to deal with.

Several states have registration programs. Oregon charges \$100 per licensee for their program. The question arises as to why NRC fees are so high and what business practice changes could be instituted to reduce your costs, but that is probably another subject for another Commission meeting.

CRCPD supports the Commission approaching Congress to request that the cost of certain activities be excluded from the fee base. However, the registration program, per se, is something that seems equitably allocated to those who own the sources. Ancillary costs, such as the costs associated with the orphan source program might be good candidates for appropriation funding.

Let me tell you about the CRCPD's orphan source initiative. The Environmental Protection Agency provides funding of \$200,000. The goal is to develop and facilitate implementation of a dynamic nationwide system that will effectively manage orphan sources. A committee has been formed, chaired by Joe Klinger of IL, with members Jim Yusko (PA), Robert Free (TX) and Cheryl Rogers (NE) and advisors Jake Jacobi (CO) and John Feeney (NJ). A meeting is planned for January 26-27, 1998, with one of the first action items to define the roles, responsibilities and procedures for the major stakeholders to the system. The committee will develop a materials management program for the system including descriptions of brokerage, direct disposal, and an outreach program to the source manufacturers for recycling options. The committee is planning an outreach program to be phased-in. An incident database is envisioned where there will be information on what types of incidents have occurred on a nationwide basis, and what the disposition of the source involved in terms of cost and time. A more detailed outline is attached for your information. The NRC and the Department of Energy also provide staff input to the initiative.

The increased oversight of the GL devices is just one step in reducing orphan sources, but it is an important one. No program for ensuring proper control over and accountability for devices would be 100% effective. State programs spend an inordinate amount of time responding to alarms at scrap metal facilities, landfills, and resource recovery facilities. If just some of this time and energy could be spent on other licensing duties, the overall radioactive materials program will improve public health. The risk assessment should help to assure that resources are being spent on the correct priorities.

## **CRCPD ORPHAN SOURCE INITIATIVE**

**Goal:** To develop and facilitate implementation of a dynamic nationwide system that will effectively manage orphan sources.

### **Action Items:**

- ◆ **Develop the criteria for application and use of the system**
  - define the roles, responsibilities, and procedures for the major stakeholders to the system (CRCPD, EPA, DOE, NRC, State radiation control programs, the steel and scrap industries, and the source manufacturers)
  - this item should include a definition of orphan source (ex. sources (materials) not traceable to a responsible party and not constituting a public health and safety emergency)
  - this item should also include a description of concentration averaging that should take into account NRC's policy statement on concentration and waste acceptance criteria from the current and proposed disposal sites
- ◆ **Develop a materials management program for the system**
  - the management program should include descriptions of brokerage, direct disposal, and an outreach program to the source manufacturers for recycling
  - options for future funding of the system should be explored
  - the program should be developed to be continuous and consistent
- ◆ **Develop and implement an outreach program for the system**
  - outreach for system should be a phased-in approach with the initial stakeholders being the state radiation control programs
  - the outreach program should include a feedback loop, i.e., an incident database (containing what occurred and was involved, the cost, and the disposition). The current NMED system should be used for this purpose
  - after "buy-in" by the state RCPs of the system, outreach to the steel and scrap industry should be conducted through informational meetings
- ◆ **Implementation of a pilot program for the system**
  - implementation of the system should be timely
  - a database containing the implementation data should be established as a means of evaluating the pilot program

### **Timeline:**

- |                     |  |
|---------------------|--|
| <b>ASAP</b>         | -create CRCPD Ad Hoc Committee on the Orphan Source Initiative                               |
| <b>by May, 1998</b> | -complete the first action item<br>-develop a straw man for the materials management program |

-plan and conduct a "round table" or similar type meeting of the states during the 1998 CRCPD Annual meeting to inform of goal and discuss straw man

- |                          |   |
|--------------------------|---|
| <b>by June 30, 1998</b>  | -committee will finalize materials management program and begin developing databases                          |
| <b>by August 1, 1998</b> | -draft final product (action items 1 and 2) to states with 45 days for comment                                |
| <b>by December, 1998</b> | -final product out to scrap/steel industry  |
| <b>January, 1999</b>     | -conduct informational meeting for above industry<br>-add data to database on implementation of pilot program |
| <b>May, 1999</b>         | -presentation on orphan source initiative at Annual meeting   |
| <b>July, 1999</b>        | -implement pilot program  |

**Roland G. Fletcher, Chair**  
**Robert Quillin, Past Chair**



Organization of Agreement States

**Stan Marshall, Chair-Elect**  
**Richard Ratliff, Secretary**

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# **NRC Commission Briefing**

## **21 January 1998**

### **► AGREEMENT STATE PERSPECTIVES ◀**

**Primary Subject: REGULATION OF GENERALLY AND  
SPECIFICALLY LICENSED DEVICES**

**Presented by:**

**Roland G. Fletcher, Chair**  
**Organization of Agreement States**

Roland G. Fletcher, Chair  
Robert Quillin, Past Chair



Organization of Agreement States

Stan Marshall, Chair-Elect  
Richard Ratliff, Secretary

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NRC COMMISSION BRIEFING-21 January 1998

◆ AGREEMENT STATE PERSPECTIVES ◆

I. INTRODUCTION AND GREETING

II. DISCUSSION

A. REGULATION OF GENERALLY AND SPECIFICALLY LICENSED DEVICES

1. OAS SUPPORT FOR WG RECOMMENDATIONS

- ◆ OAS supports the NRC/OAS Working Group (WG) recommendation for the regulation of licensed devices, especially with regard to GL device oversight. The WG version identifies the need for increased oversight of GLs as reflected in the number of response calls that occur from state to state. These calls occur at landfills, scrapyards, incinerators, etc. and frequently involve lost GL sources whose ownership is difficult to trace.
- ◆ OAS strongly emphasizes the importance of regulating all licenses included in the WG recommendation.

2. NARM CONCERNS

- ◆ OAS supports the incorporation of all licensed radioactive devices into the automated national database. This includes NARM devices that are licensed in most states. States have repeatedly demonstrated that these devices require oversight consistent with other licensed devices. The WG report further elaborated on NARM device regulation, especially radium-226, and most OAS member states support this position.

3. BENEFIT OF NATIONAL REGISTRATION

- ◆ OAS applauds the initiation of a national (and eventually worldwide) automated registration system and will continue to stress the need that it encompass all licensed devices, so that states and NRC staff get maximum benefit from the database.

## **II. B. OTHER SUBJECTS**

### **1. SERIOUS CONCERN REGARDING NRC PROPOSAL TO TRANSFER RESPONSIBILITY FOR FORMERLY LICENSED SITES**

- ◆ Former AEC Licensed Sites: OAS must express concern about NRC proposal to transfer responsibility for formerly licensed sites (by the AEC) to the states. Should removal of previously undetected radioactive material be required, states would be compelled to deal with a problem not of their making and likely outside of their resources. This must be rethought.

### **2. REGULATION OF DOE CONTRACTORS**

- ◆ DOE Contractors: NRC and OAS must jointly arrive at a mutually agreeable, and consistent position regarding the authority of our regulatory bodies to impose and enforce requirements on DOE contractors, especially those that operate outside the confines of federal property. Though special circumstances exist from state to state, what is needed now is a foundation of regulatory agreement from which to develop specific guidelines. DOE exemption is supposed to be based on national security only.

## **III. CONCLUSION**

**STATEMENT OF  
MICHAEL MATTIA  
DIRECTOR OF RISK MANAGEMENT  
INSTITUTE OF SCRAP RECYCLING INDUSTRIES, INC.  
BEFORE THE  
U.S. NUCLEAR REGULATORY COMMISSION**

**JANUARY 21, 1998**

Madam Chairman, Commissioners. My name is Michael Mattia. I am Director of Risk Management for the Institute of Scrap Recycling Industries, Inc.

Thank you for the opportunity to address you today on an issue that is very important to our members, the 1,600 companies, most of which are small businesses, that process, broker, and consume scrap commodities. These commodities include scrap iron and steel, aluminum, copper, stainless steel, lead and zinc. One or more of these metals may compose the housing for devices that contain radioactive material as well as the machinery or equipment that could house these devices. It is their metal composition, and the value of that metal, that causes lost, orphaned or stolen sources of radioactivity to be brought to scrap recycling facilities.

Our members do not knowingly accept radioactive sources or material contaminated with radioactivity. They neither desire nor are equipped to handle such materials. However, often times these materials are mixed into a load of scrap metal brought to a scrap processing facility by someone who, most likely, is also unknowing of the risk. At this point the problem begins for the scrap recycler. Our members process scrap metal using a variety of machinery designed to bale, cut, shear shred or otherwise physically transform the material according to customer specification. The housing and protective shielding that serves as the barrier around the radioactive material can be easily damaged or disintegrated due to this processing or the subsequent melting of the prepared material. People can be directly exposed to the dangers of the radioactive material. Equipment, product and land can become contaminated.

To date, to the best of our knowledge, the consequences on our members of improperly controlled radioactive material has been purely economic. However, these costs have been significant. Millions of dollars have been spent by scrap recyclers to install radiation detectors, to decontaminate equipment and land, and to transport and dispose of the contaminated product and byproduct of recycling.



How often have our members been exposed to radioactive material?

Since 1983 there have been over 2,400 detections of radioactive material at scrap recycling facilities reported to the Conference of Radiation Control Program Directors. This number includes 270 recovered sources and devices and the smelting of 31 sources of radioactivity. We strongly believe that these numbers represent only a fraction of the actual occurrences.

As we mentioned, to date, these occurrences have caused only economic hardships for our members. However, the potential for physical harm and serious risk to public health is significant. That there has yet to be reported a significant threat to health or a death due to this deadly game can only be attributed to the combination of the fact that many ISRI members monitor for the presence of radioactivity in the scrap and sheer luck.

Yet how long must our industry be forced to play this potentially deadly game? How long before our luck runs out and the odds catch up to us and one of the numerous lost, stolen or orphaned devices containing a deadly amount of radioactive material causes illness or death at a facility or in the surrounding communities?

In June of 1995, this Commission approved the formation of a joint NRC-Agreement State Working Group to evaluate the problem and propose

solutions. We welcomed the formation of this Working Group and participated in its public meetings as a stakeholder. We strongly endorse all of the recommendations of the Working Group that were published in October 1996. The key elements of these recommendations were:

- Increased regulatory oversight of general and specific licensees who possess and use devices containing a prescribed minimum amount of cesium-137, strontium-90, cobalt-60 and any transuranic. This would include a comprehensive registration program to track these sources and improved labeling to identify the existence of radioactive material.

- More stringent civil penalties for persons who have lost a device.

- A program for the proper handling and disposal of all found orphaned devices that does not place a financial burden on the finders of the devices.

On November 26, 1997, the NRC Staff published its response to the Working Group's report. The following is a synopsis of the NRC Staff's response to the issues listed above and ISRI's position on each response.

**Registration Program:** The staff agreed with the Working Group's recommendation for a registration-type approach to increase licensees' accountability over certain radioactive material. According to the Staff's

report, this would require the development of a rulemaking and the creation of the registration system. The proposed registration program would begin in FY 2001, when it is assumed a rulemaking would be completed and the final rule made effective.

There are several aspects of the Staff's recommendation on this issue that are of concern to our industry. The first deals with the Staff's recommendation that a several year long rulemaking is required before the registration program can begin. The estimated completion of the rulemaking, FY 2000, would delay implementation of the registration program until FY 2001. We appreciate the Staff's belief in the need for a rulemaking on this issue. We also understand that it would take staff time to develop a proposed registration program and we are encouraged by the Staff's plan to perform the development of the registration program in parallel to the rulemaking activities. If, indeed, a rulemaking is required for a registration program, we ask that the Commissioners do whatever is possible to expedite the start and the completion of this rulemaking.

However would a rulemaking be necessary simply to ask all licensees that fall within the parameters of the Working Group's recommendation if they still are in possession of their devices. Should the Staff not use

currently available resources to conduct a mailing that asks that question.

Then we would know fully the actual scope of the problem as it relates to lost, stolen or orphaned sources. The response from this mailing would then determine what was needed to assure that all devices were under appropriate control.

The Working Group's recommendation was for increased regulatory oversight of general and specific licensees who possess and use devices containing a prescribed minimum amount of cesium-137, strontium-90, cobalt-60 and any transuranic. Since each of these elements has found its way to scrap recycling facilities we endorse the Working Group's recommendation that each be subject to a registration and follow-up process. However, the Staff indicated that currently budgeted resources would only allow for registration and follow-up for the approximately 500 licensees that possess devices containing at least 500 millicuries of cesium-137. According to Staff, if an additional number of licensees, such as those possessing devices containing at least 10 millicuries of cesium-137, were added to the proposed program the currently budgeted resources would only allow for the initial registration of these licensees and not the follow-up

necessary for those licensees who do not respond or that respond that the devices are missing.

Experience dictates that all devices listed in the Working Group's report be subject to registration and necessary follow-up. Our proposed fact finding mailing would further clarify the potential need for follow-up. We recognize the budgetary constraints that the Staff are working under. We know that what the recycling industry, and society in general, needs most is a start towards registration and follow-up of these devices. Based on the available resources the Staff's recommendation was to register and follow-up the estimated 500 sources that contain at least 500 millicuries of cesium-137.

Yet this presents several concerns. Do we base the protection of workers in the scrap recycling industry, and the general public, strictly on projected available resources? If the scope of the registration and follow-up program must be limited due to these resources are the 500 millicurie cesium-137 sources the best ones to control? We understand the Staff's concern that these devices pose some of the greatest radiological risks. Yet are these sources more likely to be lost or stolen than others? If, due to budget restraints, we must choose a limited number of sources for

registration and follow-up then the sources chosen should be based on the fact finding mailing and reflect the potential radiological risk, and either the fact that they are presumed missing or the current and future potential for their being lost or stolen.

Therefore, for this issue we ask four things of the Commissioners.

First, that the Staff conduct a fact finding mailing to determine which sources cannot be confirmed as being appropriately accounted for and controlled. Second, that the proposed rulemaking include the issue of what should be the order of priority for registration and follow-up of devices should available NRC resources not allow all to be included at once. Third, that the NRC join with affected stakeholders in this issue to work towards obtaining additional resources that will eventually allow the NRC to register and follow-up all devices listed in the Working Group's report.

Finally, the Staff did not directly address the Working Group's recommendation to improve labeling to identify the existence of radioactive material in equipment. This is an important issue in our industry. Although many scrap recycling companies have invested in radiation detection systems and many more are expected to do so in the near future, visual detection remains an important element in the detection process. We ask

that the Working Group's recommendations for improved labeling of both the source housing and the device that contains the source housing be added to the rulemaking.

**Penalties for Lost Devices:** The Staff agrees with the Working Group's recommendation that civil penalties be increased for persons who lose devices. We concur with this position. A \$2,500 fine for a negligent action that can result in death or severe health problems as well as millions of dollars in decontamination, disposal, and "lost business" costs for a scrap recycling company is far from being adequate. A civil penalty system should encourage persons to operate within the confines of laws and regulations. Therefore we ask that the Commissioners consider increasing the fine for the loss of a device that is identified before it can cause any damage to 2 to 3 times the costs of authorized disposal of the device as outlined in the Working Group's report.

However, if the handling of the device causes human suffering or contamination of equipment, grounds or product the fine against the identified party responsible for the device should reflect the actual cost of full cleanup and the loss of business revenue. Further we ask that the Commissioners consider using these fines to create a fund that avoids the

burden to a private company for decontamination, disposal, and loss of business revenue that results from a lost device.

**Disposition of Orphaned Devices:** The Working Group recommended that the NRC work with both DOE and EPA to clearly define the responsibilities of each agency when dealing with an orphaned device. Also the Working Group recommended that the finders of devices should not be responsible for the disposal of these orphaned devices. We strongly agree with both of these recommendations.

The Staff's report recognizes that the current roles and responsibilities of State and Federal agencies dealing with orphaned devices has often caused frustration and has not always provided monetary assistance for the disposal of such devices. Members, when they discovered they had an orphaned device, have tried to contact the affected Federal and State agencies attempting to get guidance and assistance in the proper handling and disposal of the device. Very often one agency will point to another, that agency will point to a third, and the third will direct the individual back to the original agency contacted. Also, very often, when a definitive answer is given, it can be paraphrased as "You have it, it's your problem."




The issue often comes down to the availability of funds for disposal and whether or not the device poses a hazard to the general public. Due to the scarcity of funds for disposal, very often the decision made by a State or Federal agency is that since the housing around the radioactive material is intact its presence in a scrap recycling facility does not pose an imminent hazard to the public provided that nothing is done to damage or remove the housing. Requiring that a company that is not licensed to possess a device containing radioactive material, must retain custody of such a device until they can arrange and pay for its proper disposal, is an endangerment to the employees of that company and to the general public and is therefore absolutely wrong. We ask that the Commissioners require that any device that is improperly introduced into the public domain be immediately removed from the public domain. Once the orphaned device is stored safely in an appropriate State or Federal repository, then the various agencies can debate who is responsible for its disposal.

The problem of orphaned sources is a severe one that impacts our industry on a regular basis. The Staff's recommendation was that the NRC work with the States, EPA and DOE to better define each agency's role in these situations. We ask that such an effort be expedited and that

individuals representing the recycling industry be invited to participate as affected stakeholders.

**Conclusion:** We wish to thank the NRC staff for their help and cooperation in addressing this problem. Together we have worked hard to increase the general awareness of the problem and to improve our industry's knowledge and expertise on how we may best respond to the potential of radioactive material at a scrap recycling facility. And, while we will not stop in that effort, the time has come for definitive action by this Commission to prevent future occurrences of lost or mishandled sources and to insure effective government control of those that do enter the scrap recycling stream.

Thank you again for the opportunity to address you today.



**Statement of  
James F. Collins  
President  
Steel Manufacturers Association  
Before the U.S. Nuclear Regulatory Commission  
on**

**The Need for an Effective Monitoring Program  
to Control Radioactive Sources in the U.S. Economy**

**January 21, 1998**

**Steel Manufacturers Association  
1730 Rhode Island Avenue, NW  
Suite 907  
Washington, DC 20036  
U.S.A.**

**Tel. (202) 296-1515  
Fax (202) 296-2506  
<http://www.steelnet.org>**

### **The Steel Manufacturers Association**

I am James Collins, President of the Steel Manufacturers Association. The SMA is comprised of 59 steel companies, with 48 in the U.S., 7 in Canada, and 4 in Mexico. (*See membership list in Exhibit "A".*) The SMA is the largest North American steel trade association, measured in terms of steel company members. In 1997, we accounted for 43% of U.S. raw steel making capacity.

### **The Nation's Largest Recyclers**

The SMA is the primary trade association of electric arc furnace (EAF) steel producers who produce steel from a feedstock of virtually 100% scrap. The SMA also includes several integrated steel producers that make steel from a mix of ore and steel scrap. Last year our U.S. members recycled approximately 42 million tons of ferrous scrap, making us the largest recycling industry, by weight, in the U.S. We are proud of our contribution to the nation's environment.

### **The Problem**

Unfortunately, in recycling this scrap, SMA member companies and the public are being increasingly exposed to radioactive materials in the scrap supply. These sources are regulated by the NRC and typically come from spent or lost gauges previously used in manufacturing facilities, in hospitals, and in military facilities that were downsized. The presence of these sources in the stream of commerce affects the economic viability of steel companies, the environment, the health and safety of steel workers, and the general public.

## **Examples**

We are dismayed at the lack of progress on the problem of shielded radioactive sources in the scrap supply. Following are two examples of the results of NRC's inadequate penalties for negligent source licensees and the unsatisfactory program for maintaining an accurate inventory of the sources it licenses.

### **Texas Cobalt-60 Incident**

In early 1996, thieves broke into an industrial site near Houston, Texas, and stole three industrial radiography cameras. One camera, weighing approximately 1,600 pounds, contained a 35.5-Curie source of Cobalt-60, and a second camera, weighing approximately 600 pounds, contained an 8.6-Curie source of Cobalt-60. The third contained a spent Iridium source.

The thieves tore off the radioactivity warning labels on the cameras and sold two of them to a scrap dealer, who then sold the 35.5-Curie camera to another scrap dealer, misrepresenting it as stainless steel. The second scrap dealer, upon finding that the camera was not stainless steel, shipped it to a third scrap dealer, who, upon discovering it was radioactive, returned the camera to the second dealer, who, when attempting to return it to the first dealer, let the capsule containing the Cobalt source fall off the truck, landing under the corner of an office building.

As a result of this incident, twelve adults and two children were exposed to the Cobalt source, suffering alarmingly high levels of radiation. The truck driver suffered severe radiation blistering from handling the source. Five police officers investigating the incident also received low doses of radiation from the source.

Had there been sufficient penalties for loss of such NRC-licensed radioactive sources, the source licensees would probably have taken measures to keep them securely locked up, rather than available for easy theft.

### **Newport Steel Company**

The next example demonstrates major economic damage inflicted by lost radioactive sources due to the NRC's inadequate licensing and control program.

In 1992 and again in 1993, one SMA member steel company in Kentucky inadvertently melted two Cesium-137 sources. This steel company sustained a \$10 million loss. Today it has on site twelve railcars full of low-level contaminated baghouse dust resulting from the incidents. It has an *additional* one million pounds of dust in storage containers, 10,000 cubic feet of protective equipment that was used during the cleanup, and 15,000 cubic feet of contaminated gravel and soil that had to be removed in the plant decontamination process.

Since 1983, there have been 26 known incidents in the U.S., where a metals company has inadvertently melted a radioactive source (*See attached list of incidents in Exhibit "B"*). Ten SMA member steel companies have inadvertently melted radioactive sources.<sup>1</sup>

### **Radioactive Sources Pose Serious Risks to Public Safety and Health**

In its November 26, 1997 memorandum and in prior recommendations to the Commissioners, the NRC staff incorrectly portrays the radioactive source problem as only an economic problem for steel companies. While it is true that eight SMA member steel companies in the U.S. have suffered severe economic damage from the inadvertent melting of lost sources, SMA members have found far more sources than those melted in the scrap shipments entering their facilities, using the radiation detection systems they have installed.

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<sup>1</sup>Ameristeel (formerly Florida Steel), Auburn Steel, Bayou Steel, Border Steel, Chaparral Steel, Kentucky Electric Steel, Keystone Steel & Wire, Newport Steel, Nucor Utah, and TAMCO. Since 1983, there have been 26 known incidents in the U.S., where a metals company has inadvertently smelted a radioactive source.

The experience of our industry are symptomatic of a much larger problem. These incidents should serve as a warning signal to the NRC that its licensing program for generally licensed sources is inadequate, and that the penalties for losing radioactive sources or improperly discarding spent sources are too low to provide any deterrent. We are concerned that some people will have to be severely or fatally injured through exposure to a radioactive source, before the NRC takes action.

In 1954 the U.S. Congress enacted the Atomic Energy Act, establishing the Atomic Energy Agency. In passing this Act, the Congress delegated the responsibility of regulating nuclear materials to the Atomic Energy Agency (now the NRC), for the purpose of *protecting the health and safety of the public*.<sup>2</sup>

We acknowledge that the risks of lost radioactive sources in the US scrap supply were unanticipated when the Atomic Energy Act established a licensing and control system for radioactive sources. The mounting losses of these sources, however, have shown that the NRC's current regime for licensing and maintaining an accurate inventory of generally licensed radioactive sources has not been effective. We are dismayed, puzzled, and outraged that the NRC staff, instead of immediately initiating a rulemaking process to solve the problem, proposes to waste valuable time and risk public health and safety to conduct further "studies."

### **Steel Company Measures**

Because of the high costs associated with the inadvertent melting of a radioactive source, ranging from \$10 million to \$24 million per incident, all SMA member steel companies that consume scrap have installed highly sophisticated radiation detection systems to monitor incoming shipments of scrap. They also have staff members trained in radiation safety, rigorous management systems to maximize detection, and

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<sup>2</sup>Atomic Energy Act of 1954, Chapter 1, sec. 2(d) &(e).

protocols to ensure proper inspection and handling of radioactive sources. I wish to emphasize these companies are the innocent victims of insufficient control of radioactive sources in the economy. They have financial and worker health incentives to minimize the risks of an unexpected multi-million dollar bill. No radiation detection system, however, can detect all radioactive sources shielded in lead, 100% of the time.

### **SMA Response**

Radioactive scrap is a high priority for SMA member companies. They are doing everything reasonable to keep radiation out of their mills. Since 1990, the SMA has been communicating with NRC staff members who are tracking the radioactive scrap issue and cooperating with the NRC and state regulators, providing mutual assistance through information gathering and dissemination, frequent communications, and presentations by NRC and state staff people to steel company executives and other company representatives who deal with scrap management on a day-to-day basis.

### **NRC-State Working Group Progress Impeded**

Recognizing that something had to be done, the NRC appointed in 1995 the NRC-State Working Group on Regulation of Radioactive Materials ("WG") to investigate the problem of shielded radioactive sources in the steel scrap supply and to make recommendations to the NRC. The WG developed a report containing recommendations for a more stringent licensing and enforcement program and presented the report to the NRC on July 2, 1996. The WG report called for a more stringent licensing and enforcement program for the types of radioactive sources causing the most problem, reflecting the consensus of the NRC and Agreement States (except one) and the stakeholders who participated in the meetings, including radioactive source manufacturers, health physicists, steel companies, the scrap industry, and source users. For example, even the 3M Company, which has about 1500 sources in the plants within its corporate structure, stated in WG meetings that a better registration and status reporting program should be adopted by the NRC.



The NRC staff's response, released in a public meeting of the five Commissioners of the NRC on November 13, 1996, was not to adopt the recommendations of the WG, but rather, to recommend, among other things, additional study of the radioactive scrap problem. This additional study would take at least two years, before the agency would initiate the rulemaking process. We were surprised that the NRC staff would recommend this as the next course of action, given the fact that there is already a wealth of data available on the radioactive scrap problem, and an urgent need for a solution, coupled with the fact that the WG's proposed program would be completely financed by modest licensing fees and require only five full-time equivalents to set up.

The SMA can reach no other conclusion than that some NRC staff members do not accept the WG recommendations and wish to engage in further study to recommend a different course of action.

#### **Further Study is Unnecessary**

Approximately one year ago, NRC staff contacted the SMA proposing to conduct a survey of steel companies to determine their detection capabilities. We explained to the NRC staffer and later to the NRC in formal, written comments, that there is no need for further study to determine whether the NRC should begin the rulemaking process to implement the WG's recommendations for a more stringent licensing and enforcement program. Furthermore, the data requested in the survey could not possibly lead to any sound conclusions on the risk that radioactive scrap poses to steel companies.

The NRC staff was misinformed when it said that "NRC is not aware of any source that contains information requested in this survey." That is not true. The SMA has been facilitating steel company participation in a quarterly inventory on incidents of radioactivity from sources found in scrap at steel companies and scrap

yards, which have become the unwilling temporary repositories of lost radioactive sources. In addition, analyses of this data have shown the likelihood of a radioactive source ending up in a shipment of scrap.

Further surveys and “studies” are unnecessary and a waste of industry resources and taxpayer money. Steel companies are already burdened with monitoring for and disposal of radioactive sources and the associated administrative and operating costs. On the other hand, the WG recommendations would be completely financed by licensing fees. Accordingly, immediate implementation of the WG recommendations is the proper public policy response to the problem. It would be an effective first step in addressing the problem and preclude the need for further “study.”

#### **The NRC Must Initiate the Rulemaking Process Forthwith**

Given the inexcusable delays that have taken place already, implementing the registration program in fiscal year 2001 is too late. In the intervening time, more radioactive incidents will take place. We are, however, encouraged by the NRC staff’s proposal in the November 27 memorandum, to initiate the rulemaking process and install an automated registration system before completion of its “studies.” Eighteen months have lapsed since the WG issued its recommendations. The NRC should begin the rulemaking process immediately. The proposed rule should be based on the WG’s recommendations. Public notice and comment procedures as required by the Administrative Procedure Act would provide ample due process. We hope that the Commission will consider accelerating the staff’s proposed schedule.

#### **Staff Proposal is Inadequate**

The staff proposes in the memorandum to initiate a licensing program to cover only Cesium-137 sources over 500 millicuries. At a cost of \$7.2 million for the entire rulemaking and implementation process between fiscal years 1998 and 2001, the NRC should be able to cover much more of the problem than the 3,000

licensed sources it estimates would be subject to this enhanced licensing program. The staff proposal must be expanded to include smaller Cesium sources, Cobalt, and others. The memorandum also does not indicate whether this unusually high cost will be funded by licensing fees.

### **Stronger Penalties for Generally Licensed Sources are Absolutely Necessary**

The SMA also disagrees with the staff proposal to increase penalties only for negligent *specific licensees*. Loss of *generally licensed sources*, which cause the most problems for steel mills, must also subject the owners to penalties. The seriousness of this problem demands a strict liability regime, where the negligent source holder is responsible for the potential damage a lost source could inflict. Without a substantial penalty system, there will continue to be little deterrent to improper disposal of radioactive sources.

### **Mechanism for Identification and Proper Disposition of Orphan Sources**

We support the WG's and the staff's recognition of the need of a solution to the immediate problem of orphaned sources and offer to work with the agencies and non-governmental organizations, such as the Conference of Radiation Control Program Directors on this issue. We recognize that there are jurisdictional issues in dispute with respect to financial responsibility for handling and final disposition.

The NRC has known about the radioactive scrap problem since at least as early as 1983, when an electric arc furnace steel mill in New York inadvertently melted a Cobalt-60 source. The NRC has studied the problem, with much assistance from the SMA, for several years. SMA representatives have met several times with Commissioners, NRC staff, and state officials responsible for radiation protection. We participated actively in the NRC-State working group and endorsed its recommendations for a more stringent licensing and enforcement program. We cannot understand why the NRC will not implement a solution to

this problem, as soon as possible, especially when the damages are high and the relative cost of a solution is modest.

**Conclusion**

We thank you for the opportunity to comment on the NRC staff's latest recommendations on the WG proposal. Given the serious risks radioactive sources pose to the public and to the steel industry, and the NRC's Congressionally mandated duty to protect public safety and health, we urge the NRC to begin the rulemaking process as soon as possible, and implement a solution consistent with that proposed by the WG in July, 1996.

**STEEL MANUFACTURERS ASSOCIATION**  
**59 MEMBER COMPANIES**

Tel: (202) 296-1515

Fax: (202) 296-2506

A.B. Steel Mill, Inc.	Cincinnati, Ohio
AmeriSteel	Tampa, Florida
Atlantic Steel Industries, Inc.	Atlanta, Georgia
Atlax, S.A. de C.V.	Tlaxcala, México
Auburn Steel Company, Inc.	Auburn, New York
BarTechnologies Inc.	Johnstown, Pennsylvania
Bayou Steel Corporation	LaPlace, Louisiana
Beta Steel Corporation	Portage, Indiana
Birmingham Steel Corporation	Birmingham, Alabama
Border Steel Mills, Inc.	El Paso, Texas
Calumet Steel Company	Chicago Heights, Illinois
Cascade Steel Rolling Mills, Inc.	McMinnville, Oregon
Chaparral Steel Company	Midlothian, Texas
Charter Manufacturing Company, Inc.	Mequon, Wisconsin
Chicago Heights Steel	Chicago Heights, Illinois
CitiSteel USA Inc.	Claymont, Delaware
CMC Steel Group	Seguin, Texas
Compañía Siderurgica de Guadalajara, S.A. de C.V.	Guadalajara, Jalisco, México
Connecticut Steel Corporation	Wallingford, Connecticut
Co-Steel LASCO	Whitby, Ontario, Canada
CSC, Ltd.	Warren, Ohio
Deacero, S.A. de C.V.	Monterrey, N.L., México
FirstMiss Steel, Inc.	Hollsopple, Pennsylvania
Gallatin Steel	Ghent, Kentucky
Geneva Steel Corporation	Provo, Utah
Gerdau Companies, Inc.	Ontario and Manitoba, Canada
GS Industries	Charlotte, North Carolina
Hylsa, S.A. de C.V.	San Nicolas de los Garza, N.L., México
Inland Steel Bar Company	East Chicago, Indiana
IPSCO Inc.	Regina, Saskatchewan, Canada
IPSCO Steel Inc.	Muscatine, Iowa
Ispat Sidbec Inc.	Montreal, Québec, Canada
J & L Structural, Inc.	Aliquippa, Pennsylvania
Jersey Shore Steel Company	Jersey Shore, Pennsylvania
Kentucky Electric Steel Inc.	Ashland, Kentucky
Keystone Steel and Wire Company	Peoria, Illinois
Koppel Steel Corporation	Beaver Falls, Pennsylvania
Laclede Steel Company	St. Louis, Missouri
Lone Star Steel Company	Lone Star, Texas
Lukens Steel Company	Coatesville, Pennsylvania
Marion Steel Company	Marion, Ohio
McDonald Steel Corporation	McDonald, Ohio
North Star Steel Company	Minneapolis, Minnesota
Northwestern Steel and Wire Company	Sterling, Illinois
Nucor Corporation	Charlotte, North Carolina
Oregon Steel Mills, Inc.	Portland, Oregon
Qualitech Steel Corporation	Cleveland, Ohio
Roanoke Electric Steel Corporation	Roanoke, Virginia
Sheffield Steel Corporation	Sand Springs, Oklahoma
Slater Industries, Inc.	Hamilton, Ontario, Canada
Steel Dynamics, Inc.	Butler, Indiana
Steel of West Virginia, Inc.	Huntington, West Virginia
Stelco Group of Businesses	Alberta and Québec, Canada
Sydney Steel Corporation	Sydney, Nova Scotia, Canada
TAMCO	Rancho Cucamonga, California
Tuscaloosa Steel Corporation	Tuscaloosa, Alabama
USS/KOBE Steel Company	Lorain, Ohio
W. Silver, Inc.	El Paso, Texas
Wheeling-Pittsburgh Steel Corporation	Wheeling, West Virginia

## Smeltings of Radioactive Materials

## (REPORTED WORLD-WIDE)

#	Year	Metal	Location	Isotope	Activity	Decon \$M
1	#	Gold	NY	Ra DEF	unknown	unknown
2	1983	Steel	Auburn Steel, NY	Co-60	930 GBq	4.4
3	1983	Iron/Steel	Juarez, Mexico *~	Co-60	15,000 GBq	
4	1983	Gold	unknown, NY	Am-241	unknown	unknown
5	1983	Steel	Taiwan **	Co-60	770 GBq +	
6	1984	Steel	U.S. Pipe & Foundry, AL	Cs-137	0.37-1.9	0.6
7	1985	Steel	Brazil*	Co-60	unknown	
8	1985	Steel	Tamco, CA	Cs-137	56 GBq	1.5
9	1987	Steel	Florida Steel, FL	Cs-137	0.93 GBq	0.2
10	1987	Aluminum	United Technology, IN	Ra-226	0.74 GBq	0.5
11	1988	Lead	ALCO Pacific, CA	Cs-137	0.74-0.93	0.2
12	1988	Copper	Warrington, MO	ARM	unknown	unknown
13	1988	Steel	Italy *	Co-60	unknown	
14	1989	Steel	Bayou Steel, LA	Cs-137	19 GBq	0.05
15	1989	Steel	Cytemp, PA	Thorium	unknown	0.1
16	1989	Steel	Italy	Cs-137	1000 GBq	
17	1989	Aluminum	Russia	unknown	unknown	
18	1990	Steel	NUCOR Steel, UT	Cs-137	unknown	2
19	1990	Aluminum	Italy	Cs-137	unknown	
20	1990	Steel	Ireland	Cs-137	unknown	
21	1991	Steel	India *	Co-60	7.4-20	
22	1991	Aluminum	Alcan Recycling, TN	Thorium	unknown	
23	1992	Steel	Newport Steel, KY	Cs-137	12 GBq	1
24	1992	Aluminum	Reynolds, VA	Ra-226	unknown	unknown
25	1992	Steel	Border Steel, TX	Cs-137	4.6-7.4	0
26	1992	Steel	Keystone Wire, IL	Cs-137	unknown	2.3
27	1992	Steel	Poland	Cs-137	unknown	unknown
28	1992	Copper	Estonia/Russia	Co-60	unknown	
29	1993	Steel	Auburn Steel, NY	Cs-137	37 GBq	0.6
30	1993	Steel	Newport Steel, KY	Cs-137	7.4 GBq	unknown
31	1993	Steel	Chaparral Steel, TX	Cs-137	unknown	unknown
32	1993	Zinc	Southern Zinc, GA	U dep	unknown	unknown
33	1993	Steel	Kazakhstan*	Co-60	0.3 GBq	
34	1993	Steel	Florida Steel, FL	Cs-137	unknown	unknown
35	1993	Steel	Highveld Steel & V; S. Africa^	Cs-137	to 600 Bq/Kg	unknown
36	1994	Steel	Austeel Lemont, IN	Cs-137	0.074 GBq	unknown
37	1994	Steel	US Pipe & Foundry, CA	Cs-137	unknown	unknown
38	1994	Steel	Bulgaria*	Co-60	~100 mCi	unknown
39	1995	Steel	Atlas/ Tracy (Quebec) **	Cs-137	~ 5-20 mCi	unknown
40	1995	Steel	Hradek Steel, Czech Rep.	Co-60	unknown	unknown
41	1996	Steel	Fundia AB, Sweden	Co-60	unknown	unknown
42	1996	Steel	Voest-Alpine, Austria	Co-60	uncertain	unknown
43	1996	Lead	Brazil ~*	Ra (DEF)	unknown	unknown
44	1996	Aluminum	Bluegrass Recycling, KY	Th-232	unknown	unknown
45	1997	Aluminum	White Salvage Co., TN	Am-241	unknown	unknown
46	1997	Steel	undetermined, OH	Co-60	25 (?) mCi	unknown
47	1997	Steel	Kentucky Electric, KY	Cs-137	35 (?) mCi	unknown
48	1997	Steel	Alpha Steel, Italy	Cs-137	1 Ci	4 M\$

## **NOTES:**

# multiple cases reported, earliest circa 1910

\* contaminated product exported to United States

+ at least one contamination incident occurred in this time frame resulting in contaminated plumbing fittings exported to the US. Recently, there are Japanese reports of the use of contaminated structural steel used in Taipei buildings built in this time frame.

^ contaminated V slag exported to Austria; detected in Italy.

\*\* contaminated by-product (EAF dust) exported to United States

~ contaminated product distributed in United States

## **Unconfirmed smeltings:**

1993? Steel      Egypt ?

1995 Steel      Slovakia ?

BEFORE THE UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
JANUARY 21, 1998  
TESTIMONY OF ANDREW G. SHARKEY, III  
on  
Staff Recommendations for Improving NRC's Control Over and  
Licensees' Accountability for  
Generally and Specifically Licensed Devices

My name is Andrew G. Sharkey, III. I am the President and CEO of the American Iron and Steel Institute (AISI), a non-profit trade association whose 49 member companies account for approximately 70 percent of the raw steel production in the United States. I am here today to present AISI's views on the NRC staff's recommendation for improving the Commission's control over, and licensees' accountability for, radioactive devices.

This is an important issue for AISI, because its member companies operate basic oxygen furnaces and electric arc furnaces in which scrap metal is melted. When NRC control over, and licensee accountability for, radioactive devices are inadequate -- as they have been in the past -- too many of these devices wind up in the recyclable scrap stream. They can then make their way to steel mills and other metals smelting and recovery operations where, if not detected, they may be placed in the furnaces and melted.

Through a combination of prudent actions and good fortune, large integrated steel mills have avoided a radioactive melt thus far, but they clearly remain at risk. Others have been less fortunate. From 1983 through June 1996, there were 40 confirmed meltings of radioactive sources, 25 of these occurring in the United States. During that same period, there were almost 1,900 discoveries of radioactivity in scrap metal. [Describe recent Tuscaloosa experience - 11 alarms between March 4 and December 20, 1997. Two involved drivers who had recently undergone medical tests, three were determined to be NORM, and six were



determined to be contaminated material, principally oil and gas pipe.] So the problem clearly is both real and serious. It needs to be addressed effectively and expeditiously.

The consequences of such an incident can be very severe. At mini-mills, the costs of decontamination, disposal, and shutdown losses have reached \$23 million in a single incident, with the average cost falling in the range of \$8-10 million. The cost of dealing with a radioactive melt at a large integrated steel mill is estimated to run as high as \$100 million or more. And these estimates do not include the consequences of exposures that potentially may occur whenever devices are lost, abandoned, or otherwise enter the public domain.

In its report of July 2, 1996, the NRC-Agreement State Working Group outlined what we believe is the proper course of action to deal with this important issue. The Working Group recommendations called for:

- Enhanced regulatory oversight of general and specific licensees possessing devices exceeding designated activity thresholds;
- Increased responsibilities and obligations for licensees and device vendors;
- Significant penalties for lost devices; and
- A program for handling and disposing of "orphaned" devices.

In its present recommendation, the NRC staff claims to agree with the Working Group's analysis of the problem and, for the most part, with its proposed solution. Toward that end, the staff proposes to develop and implement a registration program for general licensees of devices containing at least 10 millicurie of cesium-137. While we applaud the staff's determination to proceed down this path, we do have several concerns about its proposal.

**First**, we think the registration program should not be limited to general licensees of devices containing cesium-137. Coverage under the program should depend on

the activity level of the device, not on the licensee's status. All licensees of devices that exceed the designated thresholds should be included in the program as well. Moreover, the program should not be limited to devices containing cesium-137. Those devices are important and should be covered. But other isotopes, particularly cobalt-60, have been involved in melting incidents as well and have entered the public domain. The Working Group went through a very deliberate exercise of identifying the particular isotopes and associated activity levels that warrant increased regulatory oversight and accountability. While the staff agrees with the Working Group's assessment, it proposes a much more limited program due to resource constraints. Given the severe consequences of a loss of accountability, we support the Working Group's recommendation regarding the scope of coverage, and we believe it should be possible to secure the necessary resources. For example, if the registration program is funded through fees imposed on licensees (as the staff recommends), the expanded coverage will result in additional fees to fund the program. As licensees, AISI member companies would not object to paying reasonable fees (for example, \$5 to \$10 per source, not to exceed \$500 per license) if they are used for this purpose. And we are also willing to ask members of Congress to provide the NRC with additional funds needed to accomplish this goal.

**Second**, we are concerned about how the program proposed by the staff will be structured. The core requirement would be annual registration by covered licensees. Under one regulatory option, there would be follow-up by the Commission in cases where the licensee fails to register, or cannot account for, the device. Under another option, there would be no such follow-up. The possibility that the Commission might adopt this second option is troubling. While it is useful to identify devices that cannot be accounted for, that alone is not sufficient. The Commission also must attempt to find out why the devices cannot be accounted for and to

determine their fate. As the Working Group emphasized, an active role by the Commission in comparing annual inventories and transfer reports and in resolving any discrepancies is a critical component of an effective oversight and accountability program. While an active follow-up role will add to the costs of the program, we believe these costs can be funded through additional fees or penalties levied on those licensees whose shortcomings make follow-up action necessary. This approach would be consistent with current NRC practice.

**Third**, various aspects of the program recommended by the Working Group -- including responsibilities of licensees and device vendors -- are not explicitly addressed in the staff's recommendation. This does not necessarily mean the staff has rejected these aspects of the Working Group recommendation. The staff may simply view these as details to be developed as part of the rulemaking proposal. We hope this is the case, because these elements of the Working Group recommendation -- such as obligations of vendors to report transfers of devices, to provide proper disposal information to customers, and to ensure that the devices being transferred carry a clearly visible and durable identification and warning label -- are an important complement to a registration system.

**Fourth**, we are concerned about scheduling. Under its plan, the staff would forward a proposed rulemaking package to the Commission in October 1998 and a final rule in October 1999. That means the final rule would not be promulgated until the year 2000, and the registration program would not take effect until the year 2001 at the earliest. Given the importance of the problem and the Working Group's estimate that an average of 1.5 radioactive melts occur each year, we believe the staff should accelerate the rulemaking. Since most of the spadework has already been done by the Working Group, it should be possible to publish a proposed rule this summer and to issue a final rule in the summer of 1999 -- so that

implementation of the registration program could begin by January 1, 2000.

**Finally**, we are concerned about what appears to be a lack of sufficient urgency in the staff's approach to dealing with the problem of "orphaned" devices. While the universe of orphaned devices will shrink progressively once a registration system is implemented, such devices are a significant concern today and will remain so for the immediate future. Under the current system, a person who finds himself in possession of an orphaned device is an innocent victim of inadequate oversight who may, nevertheless, be saddled with very substantial costs for handling and disposing of radioactive material. This creates a disincentive for non-licensees to screen for radioactive devices and an incentive for them to pass the devices on to others -- without notification -- when they are found. From the standpoint of accountability and public health, this is a perverse incentive structure. It should be reversed as soon as possible. Non-licensees must be encouraged to look for orphaned devices in the materials they handle and to take appropriate action when such devices are found in their possession. This means that the responsibility -- including the financial responsibility -- for handling and disposing of orphaned devices must be delineated clearly among DOE, EPA, the Commission, and state Radiation Control authorities. Agency funding for the disposal of orphaned devices must be made available -- through new legislation, if necessary. And non-licensees who are likely to come into possession of orphaned devices must be given guidance on the risks involved, the means to identify lost devices, and what to do when such devices are found. We believe the Commission should move forward on each of these fronts promptly and, to the extent feasible, concurrently.

# # # # #

In closing, let me return to where I began. Lost, abandoned, or intentionally discarded radioactive devices represent a serious problem for steelmakers, metal recyclers,

potentially exposed workers, and members of the general population. It is a problem that the Commission can and should address promptly and effectively. The staff's recommendation is a good starting point, but it does not go far enough or fast enough. We believe the NRC has an opportunity to take critical steps to prevent a serious overexposure incident involving American workers and the local community. We hope the Commission will recognize the urgency of the problem and act accordingly. Thank you.



## **POLICY ISSUE**

**(Notation Vote)**

November 26, 1997

SECY-97-273

**FOR:** The Commissioners

**FROM:** L. Joseph Callan  
Executive Director for Operations

**SUBJECT:** STAFF REQUIREMENTS – SECY-96-221 – “IMPROVING NRC’S  
CONTROL OVER, AND LICENSEES’ ACCOUNTABILITY FOR,  
GENERALLY AND SPECIFICALLY LICENSED DEVICES”

**PURPOSE:**

To request Commission approval of the staff's recommendation to develop and implement a registration program for certain 10 CFR 31.5 general licensees. The staff's recommendation is based, in part, on its evaluation of the recommendations of the U.S. Nuclear Regulatory Commission/Agreement State Working Group (WG), which evaluated current regulations on generally and specifically licensed devices (SECY-96-221).

**BACKGROUND:**

On July 2, 1996, the WG issued a final report to NRC concerning its evaluation of current regulations on generally and specifically licensed devices and provided recommendations to increase licensees' accountability of devices. On October 18, 1996, the staff provided its evaluation of the WG recommendations in SECY-96-221 and subsequently on November 13, 1996, the staff briefed the Commission on its preliminary views of the WG's recommendations.

In developing the information included in this memorandum, the staff considered the direction provided in the last paragraph of the Staff Requirements Memorandum (SRM) dated January 24, 1997, concerning extension of license terms for materials licenses. In this paragraph, the Commission recommended that the staff consider the feasibility and cost effectiveness of moving to an annual registration program in lieu of periodic license renewal, for certain categories of licenses. The staff also considered direction provided in the SRM

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**NOTE:** TO BE MADE PUBLICLY AVAILABLE  
WHEN THE FINAL SRM IS MADE AVAILABLE

dated April 15, 1997, requesting the staff to reexamine the applicability of risk-informed, performance-based regulation for materials licensees. The staff also has coordinated this response with its response to the March 7, 1997, SRM, "Rulemaking Plan for Revision of Prototype Testing Requirements for Hands, Dials, and Pointers Using Tritium: Response to PRM-32-4 to Put Timepieces with Gaseous Tritium Light Sources on the Same Regulatory Basis as Timepieces with Luminous Tritium Paint."

#### DISCUSSION:

As part of the development of the actions and recommendations included in this memorandum, the staff considered the issues contained in the December 31, 1996, SRM, and has included specific responses to these issues in an attachment, "Responses to Issues Included in the December 31, 1996, Staff Requirements Memorandum." The December 31, 1996, SRM contained 10 numbered issues that are numbered 1 through 10 in the attachment. In addition, the staff addressed the issue raised in the first paragraph of the SRM (identified as number 11 in the attachment) and the issue raised in the last paragraph of the SRM (identified as number 12 in the attachment).

#### Risk Assessment and Risk-Based Restructuring of the Licensing and Inspection Programs

In response to the cited SRMs, the staff has initiated a comprehensive risk assessment of the current licensing and inspection programs and licensees' activities. The risk assessment will determine the risk associated with licensees' activities by determining and relating the probabilities of the occurrences and consequences of events during use and likely accidents involving radioactive material. The results of the risk assessment will be used to develop restructured licensing and inspection programs for materials licensees. Registration-type programs will be considered in the development of the restructured licensing and inspection programs.

The risk assessment was initiated in June 1997 and will be completed in the fall of 1998. The staff will provide the Commission with the results of the risk assessment and a schedule for implementation of a restructured licensing and inspection program. The schedule will include the staff's plans for rulemaking to implement restructured licensing and inspection programs. The plan also will include estimates of the resources necessary to implement the programs.

The current budget includes sufficient resources for the risk assessment and restructuring activities (2.5 full-time equivalents (FTEs) and \$400,000) in fiscal year (FY) 1998.

#### Development and Implementation of a Registration Program

The primary risks identified by the WG resulted from the loss of accountability of material. Therefore, the WG recommended a registration-type approach to increase licensees' accountability. Based on its experience, the staff agrees with this conclusion and believes that a registration-type program, with periodic contact between NRC and licensees and annual device registration, would accomplish this purpose. To initiate such a program, the staff would perform the following activities:

### A. Rulemaking

The staff would need to develop amendments to the regulations to implement a registration program. The staff would initiate development of rulemaking on the Commission's approval of the recommendations in this memorandum. The staff would develop the rulemaking plan, and proposed and final rules, in accordance with Management Directive 6.3, "The Rulemaking Process." Close coordination of the rule with the Agreement States will be needed.

The development of the rulemaking could begin before completion of the risk assessment, since the scope of the regulations would not depend on which current licensees would be subject to the registration program. In addition, the resources necessary for rulemaking would not directly depend on the number of registrants. The current budget includes sufficient resources in FYs 1998-2000 (0.5 FTE in FY 1998; 0.5 FTE in FY 1999; 0.5 FTE in FY 2000) for rulemaking.

### B. Automated Registration System and Policy and Guidance Documents

To support the registration program, the staff would need to develop: an automated registration system; modifications to the enforcement policy; and guidance for registrants, distributors, and staff within NRC. The staff would perform these activities in parallel to the rulemaking activities and would complete these activities before implementation of the registration program. The resources necessary for these activities would not be directly dependent on the number of registrants. The current budget includes sufficient resources in FYs 1998-2000 (0.5 FTE and \$300,000 in FY 1998; 0.9 FTE and \$200,000 in FY 1999; 0.8 FTE and \$200,000 in FY 2000) for development of an automated registration program and policy and guidance development.

### C. Implementation of the Registration Program

Implementation of the registration program would begin in FY 2001, when the final rule was effective. Implementation of the registration program would include maintaining an independent inventory of material possessed by registrants. On an annual basis, a registration form would be sent to licensees to verify their inventory and any other data required by the rule. The same action would include a registration fee which is the most efficient way of collecting fees. The costs for system maintenance, annual mailing of registration forms, data receipt, and updating of the database are approximately 0.33 FTE and \$67,000 for every 1000 licensees included in the registration program. Depending on the option chosen to recover the costs of implementation through fees (item 11 of the attachment), there may be additional costs for administering the fee program.

### D. Follow-up Activities

It is estimated that 15 percent of licensees contacted during initial implementation of the registration program would require NRC follow-up because the licensees would not register with NRC or would report that they cannot account for their devices. Complete follow-up activities would include inspections of licensees' facilities, searching for lost devices, and enforcement activities. The majority of the activities would be performed by Regional staff. The costs to



perform follow-up activities are approximately 1 FTE for every 100 licensees for which NRC performs follow-up activities. This estimate is based on the experience of Agreement States that have implemented similar registration programs, and information from surveys of general and specific licensees performed by NRC contractors.

#### E. Selection of Initial Registration Group

The current budget includes 1 FTE and \$200,000 for implementation of a registration program in FY 2001. Based on these resources, the staff has the following options for initial implementation of the registration program:

##### **E.1 Implement Registration Program, Including Follow-up, for Approximately 500 Licensees**

The staff could subject approximately 500 licensees to the registration program and could perform complete follow-up activities for all licensees that do not register with NRC or report that they cannot account for their devices. This number of licensees can be accommodated within the resources presently included in the budget for FY 2001.

The staff estimates that there are approximately 500 general licensees that possess devices containing at least 18.5 gigabecquerels (500 millicuries) of cesium-137. Based on its experience, the staff would recommend subjecting 10 CFR 31.5 general licensees that possess devices containing the greatest activities of cesium-137 to the registration program, since these devices pose some of the greatest radiological risks and have historically posed some of the greatest problems. Specifically, most general licensees have neither been inspected nor have had contact with NRC. In addition, since cesium-137 is a gamma emitter, persons could receive significant radiation exposures from these devices even if the primary source containment is not breached. If a cesium-137 source were accidentally melted by a steel mill, workers could be exposed to airborne cesium contamination, from the cesium bonding with the furnace dust, and, furthermore, the steel mill would incur costs for decontamination, facility down-time, and material disposal.

##### **E.2 Implement Registration Program for Approximately 3000 Licensees**

The staff estimates that there are approximately 3000 general licensees that possess devices containing at least 370 megabecquerels (10 millicuries) of cesium-137. This is the activity level the WG recommends for cesium-137.

Based upon the resources currently budgeted, implementation of the registration program would not include follow-up activities for licensees that do not register with NRC or report that they cannot account for their devices. The staff would continue with its current practice of responding to situations where devices are found in the public domain, using the resources currently budgeted for event evaluation and response. The staff would not expect a change in the number of devices found in the public domain during the initial years of implementation of the registration program. However, the staff expects that NRC will become aware of more missing or unaccounted for devices.

The staff notes that the overall effectiveness of the registration program will be lessened since it would not respond to situations where a licensee does not register its device or where there is a discrepancy between NRC's and the licensee's information. In addition, NRC could be subject to criticism for implementing the registration program without responding to every report of an unaccountable device. However, the staff believes implementation of the registration program would at least serve to raise licensees' awareness of both possession of the devices and responsibilities associated with possession. This should result in licensees improving performance in the area of accountability of their devices.

### E.3 Implement Registration Program, Including Follow-up, for Approximately 3000 Licensees

To conduct the follow-up of missing devices or incorrect information from licensees, additional resources would need to be allocated to the program. Specifically, the 1 FTE and \$200,000 available in FY 2001 would cover maintaining an independent inventory of the licensees' devices and having the licensees register their devices on an annual basis. To perform complete follow-up activities, as described in Section D above, additional resources (4.5 FTEs annually beginning in FY 2001) would be required which are not included in the current budget.

### RESOURCES:

The current budget includes resources for the activities discussed in this paper as shown in the following table:

	FY 1998		FY 1999		FY 2000		FY 2001		TOTAL FY 1998-2001	
	\$,K*	FTE	\$,K	FTE	\$,K	FTE	\$,K	FTE	\$,K	FTE
<b>Risk Analysis</b>	400	2.5	-	-	-	-	-	-	400	2.5
<b>Rulemaking</b>	0	0.5	0	0.5	0	0.5	-	-	0	1.5
<b>Automated System/Guidance Development</b>	300	0.5	200	0.9	200	0.8	-	-	700	2.2
<b>Implementation</b>	-	-	-	-	-	-	200	1.0	200	1.0
<b>Total</b>	700	3.5	200	1.4	200	1.3	200	1.0	1300	7.2

\* \$,K - contract support in thousands of dollars.


These resources are sufficient for the risk assessment and restructuring activities in FY 1998, and for the development of the registration program (i.e., rulemaking and system and guidance development) during FYs 1998-2000. The current budget includes sufficient resources in FY 2001 to implement the registration program as described in option E.1 or E.2. To implement the registration program as described in option E.3, additional resources (4.5 FTEs annually beginning in FY 2001) would be required which are not included in the current budget. Depending upon the option chosen to recover the costs of implementation through fees (item 11 of the attachment) there may be additional costs for administering the fee program.

**RECOMMENDATION:**

The staff recommends that the Commission approve its plan to develop a registration program and implement the program beginning in FY 2001. The extent and number of licensees for which the staff would conduct follow-up activities in FY 2001 would be based on the resources contained in the FY 2001 budget and any additional resources made available.

**COORDINATION:**

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Information Officer has reviewed the staff requirements for information technology and information management implications and concurs. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.



L. Joseph Callan  
Executive Director  
for Operations

**Attachment:**

"Responses to Issues Included in the December 31, 1996,  
Staff Requirements Memorandum"

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Friday, December 12, 1997.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT December 5, 1997, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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## RESPONSES TO ISSUES INCLUDED IN THE DECEMBER 31, 1996, STAFF REQUIREMENTS MEMORANDUM

This attachment addresses the issues included in the December 31, 1996, Staff Requirements Memorandum (SRM). Each issue is numbered to correspond to the numbering in the SRM. In addition to the 10 numbered issues, the staff also has addressed the issues listed in the first and the second-to-last paragraph of the SRM. These are numbered in this section as Issues 11 and 12, respectively.

1. *The staff's position (accepting, rejecting, or accepting in part) on each of the working group's recommendations, and the basis for that position.*

The U.S. Nuclear Regulatory Commission/Agreement State Working Group (WG), which evaluated current regulations on generally and specifically licensed devices, provided recommendations in the following five areas. The staff has evaluated each recommendation and has provided its position on each recommendation:

### Increased Regulatory Oversight

The staff agrees with the WG's recommendation to increase oversight of certain licensees, based on the consequences from loss of accountability of material. However, the staff will go beyond the WG's recommendation by performing a comprehensive risk assessment of all material currently in use. The staff will use the results of the risk assessment to restructure the current licensing and inspection programs into risk-based programs.

The staff also agrees that licensees possessing the devices identified by the WG should be subject to increased oversight. The staff believes the risk assessment will confirm this. However, the current budget does not include the resources necessary to implement an increased oversight program for all the licensees identified by the WG. Therefore, the staff recommends implementation of a registration program for a subset of the licensees identified by the WG. Specifically, the staff recommends implementation of a registration for general licensees that possess devices containing certain activities of cesium-137.

### Penalties for Lost Devices

The staff agrees with the WG's recommendation for imposition of increased penalties for persons losing devices. The staff will consider increasing civil penalties for specific licensees that lose devices. Since increasing civil penalties is intended to deter licensees from losing devices, the staff does not believe it is appropriate to increase penalties for general licensees until it has identified and notified the general licensees. Therefore, the staff will consider increasing civil penalties for general licensees that lose devices during implementation of the registration program. In addition, as recommended by the WG, the staff intends to exercise enforcement discretion during the initial years of implementation of registration program to encourage general licensees to identify and report violations.

### Disposition of Orphaned Devices

The WG recommended that NRC ensure that a program is implemented to properly handle and dispose of all orphaned devices<sup>\*</sup> found within its jurisdiction.

The staff notes that the States are responsible for initial response to incidents involving orphaned devices. However, this does not necessarily mean that the States are financially responsible for the handling and final disposition of orphaned devices. It is not clear who will be ultimately responsible for the costs associated with the handling, transportation, and final disposition of these devices. Depending on the situation, any one or any combination of the parties (i.e., the State, the possessor of the orphaned devices, or a Federal agency) may be responsible for, or may accept responsibility for, the costs of handling, transportation, and final disposition of orphaned devices.

The response, roles, and responsibilities of State and Federal agencies in similar events in the past have varied, resulting in some State and Federal officials becoming frustrated. In some cases involving orphaned devices, NRC, the U.S. Environmental Protection Agency (EPA), or the U.S. Department of Energy (DOE) have provided only non-monetary assistance to States and possessors of orphaned devices. In other similar situations, a Federal agency has paid for the handling and disposal of the orphaned devices.

The staff recommends that it will work with the States (e.g., through the Conference of Radiation Control Program Directors (CRCPD) and the Organization of Agreement States (OAS)), EPA, and DOE to better define the roles of each agency in responding to situations involving orphaned devices. This will include defining the party(ies) responsible for the costs of handling, transportation, and disposal of orphaned devices. Once the roles of the various parties are defined, the staff will evaluate the risk associated with the process for handling orphaned devices and determine whether changes are necessary. Any recommendations for changes to the process will be provided to the Commission.

### Recommendations for State Regulatory Programs

The staff agrees with the WG's recommendation that all State regulatory programs implement the first three recommendations provided by the WG for both (1) byproduct material and (2) naturally occurring or accelerator-produced radioactive material (NARM). In response to Issue 6 in this attachment, the staff has addressed Agreement State compatibility regarding the actions that it will implement.

Currently, there are a large number of devices containing NARM being used in the United States. Many of these devices are regulated under programs similar to those currently in place for devices containing byproduct material and, therefore, are just as susceptible to loss of control. This conclusion is supported by reports of persons finding devices containing NARM in the scrap stream.

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<sup>\*</sup> Orphaned devices are devices that appear in the public domain, are discovered by someone other than the rightful owner – usually a non-licensee – and cannot be traced to a viable entity (such as an owner or responsible licensee).

Since these devices contain NARM, they are not regulated by NRC. Therefore, changes to NRC's programs will not require States to control devices containing NARM, but NRC would support similarity in control of NARM and byproduct material in Agreement States.

Since possession and use of NARM devices are regulated by all of the States, including non-Agreement States, the staff plans to involve the CRCPD, as well as the OAS, early in the process to ensure that the changes that NRC implements can be implemented by the States, for regulation of NARM material. The early involvement of the CRCPD and the OAS will ensure that the States are informed of NRC's proposed actions and will ensure that their input to the process is timely and adequately addressed. Early involvement will also facilitate inclusion of the appropriate changes into the Suggested State Regulations.

#### Recommendations for Non-Licensed Stakeholders

The WG recommended that NRC provide guidance information to non-licensees, who are likely to come in contact with lost devices, since it will help ensure that byproduct material not in the control of a licensee will be identified and removed from the public domain.

The staff agrees with the need for guidance in this area. However, the staff believes that such guidance should not be issued until NRC has clearly defined the roles of States, the possessors of the orphaned devices, and Federal agencies in the handling and final disposition of orphaned devices. Therefore, the staff will address issuing guidance in this area once the role of each party is defined.

2. *The proposal by Ms. Aldrich to require specific licenses for the more hazardous devices now available under a general license, and address whether this proposal will lead to greater harmonization of U.S. regulations with those of other countries.*

The staff will determine as part of its risk assessment whether certain devices should be subject to specific licenses and will require persons using these devices to obtain specific licenses as part of the restructuring of licensing and inspection programs.

The staff would like to note that only requiring specific licenses for many of the devices currently used by general licensees will not decrease the risk associated with the devices. Specifically, the staff believes that many of the devices only present high risks if the users lose accountability. Loss of accountability typically occurs as a result of infrequent contact between users and regulations. Simply requiring prior approval of licenses will not necessarily increase licensees' accountability for the devices. Therefore, the staff will develop and implement a registration program for certain general licensees and will consider additional registration-type programs as part of the restructuring of the licensing and inspection programs.

Also, the staff disagrees with the statement that issuing specific licenses for possession and use of generally licensed devices will result in "... greater harmonization of U.S. regulations with those of other countries." Specifically, many countries have already implemented device registration programs. Domestically, many of the Agreement States that have implemented increased oversight programs for general licensees have not required specific licenses for

possession and use of the material. Instead, they have implemented variations of registration programs.

3. *Any additional recommendations from the staff that were not addressed in the working group report (such as proceeding with or dropping the air gap rule), including the above information on resources and reprioritization for each staff recommendation.*

The staff is performing or will perform the following activities that were not included in the WG's recommendations:

- The staff is performing a comprehensive risk assessment of the current licensing and inspection programs, including licensees' activities. The results will be used to develop new, risk-based programs. The staff will obtain Commission approval before implementing the new licensing and inspection programs.
- The staff would drop two previous rulemakings that are essentially on hold. The first would establish a general license registration system for all 10 CFR 31.5 general licensees (the proposed amendments were published in the Federal Register on December 27, 1991); and the second would establish a maximum accessible air gap for generally licensed devices (the proposed amendments were published in the Federal Register on November 27, 1992). The staff would drop these rulemakings since both of these rulemakings address only generally licensed devices, were issued as proposed rules 5 and 4 years ago, respectively, and neither fully meets the current plans of the staff. The staff will determine from the results of the risk assessment whether similar rulemakings should be developed. However, the staff will include some of the essential elements of the 1991 proposed amendments to establish a registration program for certain general licensees.

4. *The NRC and Agreement State resources needed to implement each working group recommendation (including those that the staff has accepted in part or rejected).*

The WG recommended that NRC and Agreement States implement programs for increased oversight of general and specific licensees that possess devices containing  $\geq 370$  Megabecquerels (MBq) (10 millicuries (mCi)) cesium-137;  $\geq 37$  MBq (1 mCi) cobalt-60;  $\geq 3.7$  MBq (0.1 mCi) strontium-90; or  $\geq 37$  MBq (1 mCi) transuranics (e.g., americium-241). This represents approximately 30,000 licensees (8000 NRC general licensee, 2000 NRC specific licensees, 16,000 Agreement State general licensees, and 4000 Agreement State specific licensees). The staff believes that implementation of a device registration program, similar to the program recommended by the staff for cesium-137 devices, will be the most efficient manner for providing the increased oversight recommended by the WG. However, the current budget doesn't include the resources necessary to perform activities.

The table below lists the resources necessary to develop and implement the registration program for the NRC licensees identified by the WG. Note that the scope of the WG program was larger than that currently proposed by the staff.

	(FTE) <sup>a</sup>	(\$,K) <sup>b</sup>
Rulemaking	2.0	0
Automated System/Guidance Development	2.6	770
Implementation	3.3	670
Follow-up Activities	15.0	0

<sup>a</sup> FTE - Full-time equivalent NRC resources.

<sup>b</sup> \$,K - contract support in thousands of dollars.

The staff made the following assumptions to develop the resource estimates identified in the table:

- The staff assumed there would be a minimal increase in the costs of rulemaking and development of the automated registration system and guidance development as compared to the costs of its proposed actions since specific licensees would be included in the registration program.
- The staff assumed there would be a proportional increase in the costs for implementation and follow-up activities based on the estimates provided in sections C and D of the memorandum.

The staff has not included a detailed estimate of the resources necessary for Agreement States to implement the WG's recommendations. Currently, there are too many variables (e.g., costs for Agreement States to develop rulemaking, costs for Agreement States to develop automated registration systems and guidance). However, the staff believes that the WG's estimate for resource commitments for Agreement States to implement the registration program, (i.e., twice the estimated resources for NRC), is reasonable and provides an order-of-magnitude estimate of the collective costs for Agreements States to implement the staff's recommendations.



5. *Whether NRC resources are currently budgeted. If resources are not currently budgeted, then the staff should describe the activities that will have to be reprioritized to carry out the actions. Resource estimates for each year and for maintenance of the developed system after the plan has been completely implemented should be included. The staff should strive to develop the most cost-effective plan possible.*

The current budget includes resources for the activities discussed in this paper as shown in the following table:

	FY* 1998		FY 1999		FY 2000		FY 2001		TOTAL FY 1998-2001	
	\$,K	FTE	\$,K	FTE	\$,K	FTE	\$,K	FTE	\$,K	FTE
Risk Analysis	400	2.5	-	-	-	-	-	-	400	2.5
Rulemaking	0	0.5	0	0.5	0	0.5	-	-	0	1.5
Automated System/Guidance Development	300	0.5	200	0.9	200	0.8	-	-	700	2.2
Implementation	-	-	-	-	-	-	200	1.0	200	1.0
Total	700	3.5	200	1.4	200	1.3	200	1.0	1300	7.2

\* FY - Fiscal Year

These resources are sufficient for the risk assessment and restructuring activities in FY 1998, and for the development of the registration program (i.e., rulemaking and system and guidance development) during FYs 1998-2000. The current budget includes sufficient resources in FY 2001 to implement the registration program as described in option E.1 or E.2. To implement the registration program as described in option E.3, additional resources (4.5 FTEs annually beginning in FY 2001) would be required which are not included in the current budget. Depending upon the option chosen to recover the costs of implementation through fees (item 11 of this attachment) there may be additional costs for administering the fee program.

6. *The staff's position on the Agreement State compatibility issue raised by the working group, and make a recommendation on the appropriate level of compatibility for each requirement that the staff recommends adopting.*

The staff has developed the following preliminary views on Agreement State compatibility, for its recommendations.

#### Registration Program

The staff will recommend making the registration program described in the memorandum as a Category C item of compatibility for Agreement States. The staff will, as part of the

proposed rulemaking, specifically ask for comments and recommendations on the proposed level of compatibility.

### Enforcement Policy

Typically, NRC does not dictate to Agreement States the types of enforcement policies they must implement. However, the WG indicated that Agreement States should implement enforcement policies similar to the program it recommended to NRC. The staff agrees with the WG's recommendation, based on the impact it will have on the effectiveness of programs to ensure accountability of material and the impact the loss of material has on other regulatory jurisdictions.

Under the new adequacy and compatibility policy and implementing procedures approved by the Commission, the staff has greater latitude to consider all program elements, including policies, implementing procedures, and regulations as compatibility items. The staff will examine having Agreement States implement enforcement policies at least as stringent as those recommended by the staff. The staff understands that Agreement States may not be able to implement identical enforcement policies, such as issuing civil penalties. However, the staff will examine having Agreement States take enforcement actions that have at least the same impact as those included in NRC's enforcement policy for loss of material.

### Restructured Licensing and Inspection Programs

The staff believes that Agreement States should restructure their licensing and inspection programs to accurately reflect similar requirements under compatibility and should implement a structure at least as stringent as that adopted by NRC. Under the new adequacy and compatibility policy, these requirements are defined as Category C items of compatibility. This means that Agreement States would have to adopt a legal requirement and procedures that meet the essential objectives of these NRC provisions. The staff believes this is essential since the restructured licensing and inspection programs will be risk-based and losses of byproduct material could negatively impact other regulatory jurisdictions. If the Agreement States do not implement compatible regulations, the nationwide effectiveness of the program will be diminished.

The staff reviewed the recommendations and comments the WG received during open meetings (these are included in Section 4.1 of the WG report) and the comments received in response to the 1991 proposed rulemaking for implementation of a general-license registration system. Most vendors, users, and non-licensed stakeholders supported the implementation of a registration or similar regulatory oversight program identical to NRC's program. However, the crux of their argument regarded ensuring nationwide effectiveness of the program and ease of licensee implementation of the program.

The staff disagrees with the commentors and believes, under current compatibility procedures, an effective, nationwide program can be implemented as a Category C item of compatibility. The staff does agree with the commentors that a program identical to NRC's program will be easier and more cost-effective for licensees to implement. However, it will not allow an Agreement State to exercise local control and be more stringent. This is important since some Agreement States already have implemented more stringent programs.

Requiring these States to modify their programs may decrease the level of protection currently afforded by their programs.

7. *The action to quantify the risks associated with unaccounted-for devices. Specifically the staff should plan to proceed with establishing the probabilities associated with devices being lost, devices causing exposure to members of the public, devices entering the metals manufacturing stream, devices being smelted, and other incidents the staff recommends analyzing.*

The staff will quantify the risks identified above as part of the risk assessment of current licensing and inspection programs. The results of the risk assessment will be used in the restructuring of the licensing and inspection programs.

In addition, the staff has already implemented a risk assessment – using methodology similar to that used for probabilistic risk assessments for nuclear power reactors – for industrial gauges incorporating cesium-137 and cobalt-60. This assessment will include quantifying the risks identified above for industrial gauges incorporating cesium-137 and cobalt-60.

8. *A mechanism for identification, control, storage, and proper disposal of orphan sources, including a funding plan for such contingencies.*

The staff notes that the States are responsible for initial responses to incidents involving orphaned devices. However, this does not necessarily mean that the States are financially responsible for the handling and final disposition of orphaned devices. It is not clear who will be ultimately responsible for the costs associated with the handling, transportation, and final disposition of these devices. Depending on the situation, any one or any combination of the parties (i.e., the State, the possessor of the orphaned devices, or a Federal agency) may be responsible for, or may accept responsibility for, the costs of handling, transportation, and final disposition of orphaned devices.

The responses, roles, and responsibilities of State and Federal agencies in similar events in the past have varied, resulting in frustration among some State and Federal officials. In some cases involving orphaned devices, NRC, EPA, and DOE have provided only non-monetary assistance to States and possessors of orphaned devices. In other similar situations, a Federal agency has paid for the handling and disposal of the orphaned devices.

The staff recommends that it will work with the States (e.g., CRCPD and OAS), EPA, and DOE to better define the roles of each agency in responding to situations involving orphaned devices. This will include defining the party(ies) responsible for the costs of handling, transportation, and disposal of orphaned devices. Once the roles of the various parties are defined, the staff will evaluate the risk associated with the process for handling orphaned devices and determine whether changes are necessary. Any recommendations for changes to the process will be provided to the Commission.

9. *A rulemaking plan. The action plan should include a specific action to develop a rulemaking plan to address these device accountability and control issues, along with a schedule for the rulemaking process.*

The staff would develop the rulemaking plan, and proposed and final rules, in accordance with Management Directive 6.3, "The Rulemaking Process." The final rule would be issued in FY 2000.

Other rulemakings may occur as a result of the completion of the risk assessment and the systematic reassessment of exemptions. Rulemaking plans and schedules will be provided to the Commission once these activities are completed.

10. *When each accepted action will be started and completed.*

The risk assessment of the current licensing and inspection programs will be completed in the fall of 1998.

The staff would develop the rulemaking plan, and proposed and final rules, in accordance with Management Directive 6.3, "The Rulemaking Process." The final rule would be issued in FY 2000. Implementation of the registration program would begin in FY 2001. The extent and number of licensees for which the staff would conduct follow-up activities in FY 2001 would be based on the resources that the Commission directs be made available.

11. *The staff should also advise the Commission on options to pay for an enhanced NRC regulatory program including the availability of external funds, or whether consideration needs to be given to exploring with Congress the possibility of removing specific program costs from the NRC's user fee base (e.g., orphan source recovery fund).*

The staff has developed the following five options for recovery of the costs of implementation of the registration program, based on implementation of the program for 3000 licensees, including complete follow-up activities.

1. **Status Quo - Do not charge fees to registration licensees -** Under the current fee policies, the majority of NRC's general licensees pay no fees. Under this option, the costs of the registration program (\$1,438,000 per year) will continue to be paid by all NRC specific licensees since only current general licensees will be subject to the registration program. Thus, specific licensees could argue that the costs of the registration program will be another example of NRC specific licensees being required to pay for costs that do not directly relate to them, to collect approximately 100 percent of the Agency's budget authority. This option would result in power reactor licensees paying an additional \$12,200 per reactor per year after the registration program is established. Under the FY 1997 final rule, each power reactor is subject to an annual fee of \$2,978,000.

Under this option, there will be no additional resources expended by the Office of the Chief Financial Officer (OCFO) because there will be no increase in the number of licensees subject to fees.

2. Charge registration licensees annual fees for the costs of the program - assess annual fees to the approximately 3000 registration licensees to recover the costs of the registration program. Under this option, the OCFO will be required to increase the number of licensees that it interacts with for fee purposes by almost 50 percent (from approximately 6500 to approximately 9500). This will increase the existing OCFO workload of billing and collecting annual fees for materials licensees by approximately 50 percent. Based on the effort required to assess and collect annual fees from small materials licensees, it is estimated that the increased workload would require an additional 2 FTEs and \$70,000 in contract support. These costs would be required to generate the bills, verify the accuracy of the bills, and collect and post payment information, as well as provide services to collect delinquent debts. Of this, approximately 1.5 FTE would be necessary for the debt collection activities. The OCFO will also need to incur one-time costs (approximately \$15,000) for modification of the current fee billing system. Based on the history with the annual fee billings for NRC specific materials licensees initiated in FY 1991, it can be expected that there will be significant opposition, from registration licensees, to the establishment of annual fees.

Based on 3000 registration licensees, it is estimated that the annual fee for each registration licensee would be \$480.

3. Charge registration fees for the costs of the program - assess registration fees to the approximately 3000 registration licensees, at the time of registration to recover the costs of the registration program. Under this option, the registration licensees will pay fees annually when they register or re-register their devices. The OCFO will contract to have registration applications and registration fees routed through a bank for direct deposit of the fee into an NRC account. The bank will forward the registration to the Office of Nuclear Material Safety and Safeguards for processing and provide the OCFO with an electronic file containing payment data. The OCFO will only need to follow up on situations where registration licensees do not provide the appropriate fee. The additional OCFO resources necessary to assess registration fees will be approximately 0.5 FTE and \$1000 for contract support. However, as discussed in Option 2, it can be expected that there will be significant opposition, from general licensees, to the establishment of registration fees.

Based on 3000 registration licensees, it is estimated that the fee will be \$480.

4. Charge distributors for the costs of the registration program - there are currently about 35 NRC-licensed distributors of generally licensed devices. Under this option, the costs of the registration program will be recovered from these distributors. It is estimated that the current annual fee of approximately \$3500, for each NRC license, for distribution of generally licensed devices, will increase by about \$41,100 after the registration program is established. NRC could expect strong opposition, from the distributors, regarding the increased annual fees. This may also raise fairness and equity concerns because distributors in Agreement States that distribute to registration licensees in non-Agreement States would not be subject to NRC charges. This option also will depart from the existing policy of assessing fees, to the holders of the licenses, that directly relate to the regulatory activities, whenever possible.

This option will require no additional resources for the OCFO as the recovery of the costs from the approximately 35 current NRC licensees could be accommodated within the existing system.

5. Propose that the costs relating to the registration program be removed from the license fee base. The Commission, in the March 27, 1997, SRM relating to the Strategic Assessment Direction-Setting Issue 21, instructed the staff to update the February 1994 report to Congress on NRC's fee policy. SECY-97-249, dated October 24, 1997, recommends that the Commission consider proposing to the Office of Management and Budget and Congress that the cost of certain activities be excluded from the fee base. Those activities discussed in SECY-97-249 and in SECY-97-226, dated October 3, 1997, continue to raise fairness and equity concerns due to the relationship of those activities to the NRC regulation of licenses that pay fees. The costs relating to the registration program could similarly be considered in costs identified for removal from the NRC fee base.

Historically, fees have not been assessed to general licensees that do not file documents with NRC for approval. NRC does not have identifying information on the individual general licensees because the general licenses are issued through the regulations. The costs of the general license programs are recovered through annual fees assessed to NRC specific licensees, although the programs provide no benefit to the specific licensees. Since the inception of 100 percent fee recovery in FY 1991, general licensees that file documents with NRC for approval, such as Agreement State licensees that do work in non-Agreement States under reciprocity, are assessed fees. With few exceptions, such as the NRC's fee exemption for licenses held by nonprofit educational institutions, based on the "public-good" concept, applicants and licensees that file documents for NRC approval are assessed fees for services and/or annual fees. Since the registration licensees will file documents with NRC for approval and will be identifiable recipients of NRC services, it may be difficult to justify removing the costs of the registration program (\$1,438,000 annually) from the fee base.

The staff recommends Option 3 because it is one of the most cost-effective options, it satisfies the fairness and equity concerns, and it complies with the Independent Offices Appropriation Act by recovering the costs of the individually identifiable services from the specific applicants and licensees.

The staff plans to include a proposed revision, to 10 CFR Part 170, to charge application fees for the registrations in the proposed rule for implementation of the registration program. As indicated earlier, staff plans to forward the proposed registration rulemaking to the Commission in October 1998, and forward a final rule in October 1999, after evaluation of public comments.

12. *The staff should consider the need for initiating this effort in advance of the completion of the rulemaking. Because it is unlikely that the staff will be able to quantify these risks at the time the action plan is provided to the Commission, the staff should base the action plan recommendations on the staff's own general experience with the associated risks.*

The staff has determined that it should not implement a program for increased oversight in advance of rulemaking. Specifically, Office of the General Counsel has indicated that a registration-type program for general licensees cannot be implemented without rulemaking and the budget does not include resources necessary to implement a program (e.g., an on-site inspection program) in parallel to the development of rulemaking.