

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON THE AGENCY ACTION REVIEW MEETING –

MATERIALS

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WEDNESDAY,

MAY 30, 2007

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The Commission met at 9:30 a.m., in One White Flint North,
11555 Rockville Pike, Rockville, Maryland, the Honorable Dale E.
Klein, Chairman, presiding.

COMMISSIONERS PRESENT:

DALE E. KLEIN, Chairman

EDWARD McGAFFIGAN, Commissioner

JEFFREY S. MERRIFIELD, Commissioner

GREGORY B. JACZKO, Commissioner

PETER B. LYONS, Commissioner

ALSO PRESENT:

LUIS REYES, Executive Director of Operations

CHARLES MILLER, Director, Office of Federal State Materials
and Environmental Management Programs

MICHAEL WEBER, Director, Office of Nuclear Material Safety
and Safeguards

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

CHAIRMAN KLEIN: Well, good morning, now we move into our briefing this morning. I get to learn a new acronym, AARM. And so we will hear about the management tool for assessing the performance trends and significant issues among NRC and Agreement State licensees in the materials and waste programs that I understand that we are briefed annually on these programs. So would you like to proceed?

MR. REYES: Good morning, Chairman and Commissioners. The staff will brief the Commission on the results of the Agency Action Review Meeting for the materials and waste programs. The Agency Action Review Meeting or the AARM is held each year in accordance with Management Directive, 8.14, "Agency Action Review Meeting."

This morning, we are going to have two panels. The first panel is going to address the materials licensee trends. The second panel will be a closed briefing regarding a nuclear materials licensee. Tomorrow we will have the reactor-related discussions on the industry trends, the Reactor Oversight Process and those plants in Column IV, what is referred to as Multiple/Repetitive Degraded Cornerstone Column of the action matrix.

The speaker this morning will be Charlie Miller, the Director of the office, and I will turn over the meeting to Charlie.

MR. MILLER: Thank you, Luis. Good morning. My

objective today -- may I have Slide 3, please, to start. Thank you.

My objective today is to provide a summary of the trending analysis that we performed in fiscal year 2006 for reportable events in the materials and waste program. During my presentation today, I will also address the issues raised by the Commission regarding materials and waste programs for 2006 and the annual licensee performance report relating to source security.

Now, let me give you a little bit of perspective on the materials and waste programs before we get into the meat of the discussion.

First of all, we are dealing with a very large number of materials licensees. There are almost 22,000 total nationwide, a little over 4,500 which are NRC licensees, and a little over 17,000 are Agreement State licensees.

More importantly, a wide variety of applications and activities are in place, including industrial, medical, academic, and fuel cycle applications.

In some cases these applications include intentional exposure to radiation, such as diagnostic and therapeutic medical applications.

These activities require people practicing careful, well-conducted handling of radioactive materials.

For example, one medical industry website estimates that there are around 16 million diagnostic procedures per year, and

the number is growing. And that does not include the therapeutic treatments. Over the last ten years, we have had an average of about 37 medical events per year, which represents a very small percentage of the procedures conducted annually.

This has implications of when we discuss trending.

Recognized, first of all, that we dealing with a very small number in terms of statistics.

Furthermore, the denominator is very large, and the number of procedures or activities conducted per year is large. It is important to keep this in mind when we look at plots of data.

Also, this year we did break down the data between Agreement States and NRC licensees for the first time.

But I do want to emphasize that even though the number of events is very small, we take them very seriously. And we want to be sure that licensees take appropriate actions to understand events and to prevent their reoccurrence.

May I have Slide 4, please.

The AARM, the Agency Action Review Meeting, was conducted in accordance with Management Directive 8.14, as Luis mentioned.

For the materials and waste programs, the discussions were conducted in order to allow NRC senior managers to review agency actions that have taken place for fuel cycle and other materials facilities, including Agreement State licensees, with significant safety

or safeguards issues and identify any additional action as applicable; also to ensure that the trends in the industry and licensee performance are recognized and appropriately addressed; and to finally ensure that the coordinated courses of action have been developed and implemented for licensees of concern.

Next slide, please.

Industry data is collected, monitored and evaluated on an ongoing and periodic basis. The process is intended to identify significant licensee performance issues or NRC performance issues, program gaps, or any other issues warranting management attention and to keep awareness in front of the senior managers at the AARM.

SECY-02-0216 defines the criteria to identify those issues and the licensees that rise to the level of needing discussion at the AARM.

The criteria target the most critical issues involving very serious events, in other words, those events that trigger Strategic Level Measures; significant licensee performance or program issues that cannot be handled through the normal inspection and enforcement processes; and NRC or Agreement State program gaps or failures identified where NRC or Agreement State processes were not able to address an issue or performance problem.

The AARM review is part of a broader oversight process which includes licensing, inspection of licensee performance reviews and enforcement. This AARM review covers fiscal year, 2006.

Next slide, please.

This slide shows the goals and the criteria that we monitor against. The performance criteria emphasize graded approach from higher level, higher consequence events, including Strategic Outcomes, Performance Measures, Abnormal Occurrences that are reported to Congress, to lower level, precursor events used for monitoring and reported only within the NRC.

The graded approach provides us the ability to focus management attention on higher level items, while providing an early indication of any programmatic issues and allowing for early action on our part with the lower level items.

I will now provide a summary relative to each of these criteria.

Next slide, please.

Regarding strategic outcomes, there were no acute radiation releases resulting in fatalities; no releases of radioactive materials resulting in significant radiation exposure, that is, unintended permanent functional to an organ or physiological system as determined by a physician in accordance with our AO criteria. There were no releases or radioactive material that caused significant environmental impacts. And finally, there were no criticality events.

Regarding performance measure, as reported in FY 2006 annual performance report to Congress, the number of reported events were significantly below, more than 20 percent, established

limits that we have set as goals.

I also want to report in particular that there were no unrecovered or lost or risk-significant sources in FY 2006. Thus, satisfying our new performance goals established in 2005.

COMMISSIONER McGAFFIGAN: Could I ask a question on the slides that are 8, 9, whatever? Does this include both NRC and Agreement State data or is it primarily Agreement State?

MR. MILLER: The next slide that I'm going to get to? It includes both.

COMMISSIONER McGAFFIGAN: Both?

MR. MILLER: Uh-huh.

Next slide, please, Slide 8.

This slide shows the number of AOs over the past 8 years broken down by type of AO. Note that the AOs are the more relatively significant events. Nine AOs were reported to Congress in FY 2006.

In FY 2006, there was one fuel facility AO event, one industrial overexposure event, which was in an Agreement Statement, seven therapeutic medical events, two of which were NRC, five were Agreement State events, and two of those included dose to an embryo/fetus, one an NRC licensee and one an Agreement State licensee.

Note a that the medical AOs predominate throughout the chart. But these are very small number of events, considering the

number of procedures that are conducted annually. However, we are always concerned about any event that could affect public health and safety or the secure use of radioactive materials.

Human error, which includes failure to adhere to procedures continues to be the primary contributor to root cause. We found no discernible trend in the total number of AO events from year to year.

Next slide, please.

CHAIRMAN KLEIN: I just have a clarifying question on Slide 8. We tend to look at trends to see if anything occurs. You will notice -- again these are small numbers.

MR. MILLER: Right.

CHAIRMAN KLEIN: But if you look at 99, you know, it drops down on the medical side to none in '01 and then it picks back up, and then it drops down again. So there is no pattern that you picked up. I guess the numbers are small enough that --

MR. MILLER: Right. We didn't pick up anything statistically significant. Plus, over the course of years, we modified the AO criteria from time to time. So this data can't be normalized, you know, going back too many years. So we have to look at the information that's in front of us in any fiscal year and what the standards are with regard to what those criteria are.

COMMISSIONER McGAFFIGAN: I think that's a very important footnote. How stable have the criteria been? You are

showing eight years of data. How stable has the criteria been over those eight years? Is 2001 having no medical some reflection of a Part 35 turning point?

MR. MILLER: Right. We have modified Part 35 as one aspect. I don't have any detailed information in front of me with regard to that. I can get back to you on that.

COMMISSIONER McGAFFIGAN: I think in terms of presenting -- you know, people looking at these slides, including all of us until the right question was asked, were wondering how -- probably thinking this was a normalized chart. So I think if it is not normalized, you need to say right up front, criteria has changed over the year or something and have been stable since blankety-blank.

If that happens, we are going to have the reactor meeting tomorrow, and the reactor folks are very clear that -- you know, they sort of divide their charts into two different periods where there were two different sets of criteria for --

MR. REYES: It's easier with the reactors.

COMMISSIONER McGAFFIGAN: Okay.

MR. REYES: What Charlie talks about is you have ten events that you have to slice many, many ways. And you end up with one or two per category. And so, I think that the perspective in my mind is that it is a very small number of events. And trying to make a lot of conclusions with very small numbers per category usually is not a good way to do it.

COMMISSIONER McGAFFIGAN: Especially when it's apples and oranges as you go from year to year.

COMMISSIONER MERRIFIELD: The other thing -- the other thing I would want to reflect on -- I won't be here next year, but the staff, and I understand this, is putting, is mixing the Agreement State performance and performance of our own staff. And for my purposes, I didn't appreciate that until you asked that question. But, I think the Commission may wish to consider next year having a little bit different focus, in that you are breaking out where our Agreement States are vis-a-vis where we are to get some better idea of what the picture really is, because that -- I think that clouds it.

Now, obviously, we are talking about very small numbers. But nonetheless, there may be some data that shows that we are not doing as well as we should or alternatively, the states aren't doing as well as they should. And I would like to -- one would think the Commission would like to draw that out.

MR. MILLER: I will get to that a little bit in my forthcoming presentation here. And we will see where we can go from here.

CHAIRMAN KLEIN: And I guess probably in general, the Agreement States may be the dominant users in the medical side. I was just thinking of those states that are Agreement States probably have a higher percentage of utilization.

MR. MILLER: As we go through the presentation, I think

you will see the breakdown Agreement States and the NRC on a macro level.

COMMISSIONER McGAFFIGAN: The big medical community that we regulate are the VA and military hospitals. And somebody could perhaps look at how they perform, whether there's been any trends among them. They are lost in the data here, I'm sure, as well.

MR. MILLER: Slide 9, please.

This chart shows the number of Severity Level I and Severity Level II violations since 2001. Please note that this information is NRC only. There were 51 escalated enforcement actions in 2006. Two of these enforcement actions resulted in Severity Level II violations. And there were no significant performance trends that were identified.

Slide 10, please.

This part of our process identifies significant performance issues or performance program issues or gaps warranting attention and awareness of higher level management.

I mentioned the SECY that defined the criteria to identify those issues and the licensees that rise to the level of needing discussion at the AARM. These criteria target very serious events, significant licensee performance program issues or NRC program gaps or failures identified.

For 2006, there was one nuclear material licensee that

met the significant issues criteria as described in SECY-02-0216.

We did not find any significant trending issues and we did not identify any NRC program gaps or failures. As you know, it is important to note that our programs continue to be examined internally and externally. If the information from these examinations provide any insights or findings, we will deal with those accordingly.

Next slide, please.

On Slide 11 the staff information talks about the staff's review of four years of event data from 2002 to 2006 from the NMED database. There were 1,972 events during the four-year period. And for the previous four-year period, there were 2,038 reported. There were no significant performance trends identified, and there were no significant change from the previous four-year period.

Of the eight events types identified in NMED and the most common event type for both Agreement State and NRC are lost and stolen material. Most of these are small sources not considered to be significant enough to be included in the performance measure that we mentioned earlier. I'll provide a little bit more information about this later in my presentation.

Although there are some variation in the percentages for each event type, the number of events is very small, making a statistical calculation imprecise. Overall however, the percentages are consistent between Agreement States and the NRC. I want to emphasize that. The results are consistent given the ratio of the

number of licensees between Agreement States and the NRC. We didn't see any shift one way or the other with each performance.

COMMISSIONER LYONS: Charlie, by way of clarification on Slide 11, you talked about four years. Were the criteria used roughly constant over those four years? This gets back to the question that was raised earlier.

MR. MILLER: The issue is the same. Over the course of those four years things changed. Regulations changed. So we don't try to normalize the data and go back. It's very hard to do.

We try to take the data and have a contractor just report the data as it was against the criteria that were in effect for those years. Then what we do is we don't ask the contractor to try to make anything of that. The staff uses that as information to try to determine where we need to go from there. If we need to have further looks against it. It does change year to year.

COMMISSIONER LYONS: The previous question was on a eight-year time frame. This is a four-year time frame.

MR. MILLER: Right.

COMMISSIONER LYONS: But even within the four year time frame.

MR. MILLER: Even within the four-year time frame, yeah.

COMMISSIONER MERRIFIELD: I'm sorry, just to follow on that train of thought, as a general matter, haven't we, in various

years, tightened up the most recent change to Part 35? Wouldn't we be picking up activities we would otherwise not have picked up previously perhaps?

MR. MILLER: We have situations where we pick up information that we didn't previously pick up. We have situations where we have relaxed the report. So it is not common -- it is not a common reporting requirement over the whole range of periods. So we have to take it year by year and look at that, try to make some sense of the trending data.

But when you are -- so to some degree -- I don't want to say it's apples and oranges, because it is not, but things do change over time. So you can't simply look at the shapes or the curves and say that it is absolutely trending one way or the other in some cases, especially with small numbers. It makes it a challenge in the materials area.

COMMISSIONER MERRIFIELD: It also makes the numbers relatively meaningless, if you can't derive any analysis of whether we have gone one way --

MR. MILLER: We can, Commissioner. But what we have to be careful of is that we factor in what's changed into our thinking. In other words, with what's changed, is it causing more things -- a lot more things that were not being reported to be reported? Is it causing a lot less things to be reported that were being reported? And we're not seeing large variations.

MR. REYES: And with all those changes if you change from 8 to 12, that comes back to the issue that the numbers continue to be small and it's very hard for us to give you great insights on what it means, because it is not changing much. And it's a very small number. So it is a difficult area.

MR. MILLER: Slide 12, please.

As I mentioned earlier, based on the fourth quarter NMED data, the staff performed a special study of the event data to determine if there were any significant differences between event data reported by this NRC licensees and those compared to those reported by Agreement State licensees.

Based upon the NMED Fourth Quarter Report, there were 452 total reportable events for 2006. Three hundred and thirty-five of these events were in Agreement States, and 117 were in NRC states -- or NRC-regulated licensees, which is a 74-26 percent breakdown. So this is within the relative ratios of Agreement States and NRC ratio of number of licensees.

The breakdown of reportable events was consistent with the total number of licensees between Agreement States and the NRC, being 80 percent 20 percent. So as I said, I didn't see any large discernible difference there.

There was no significant differences identified after comparing on this data. However, we did note that there was no indication of significant difference in the frequency of event

occurrence, and the magnitude of Agreement State and NRC events was low considering the number of licensees, as I mentioned earlier.

Slide 13, please.

As I mentioned earlier in the trending review, the most common event type for both Agreement States and NRC was lost and stolen material. This chart provides more detail on the unrecovered lost and stolen sources for 2006 based on the IAEA Code of Conduct and Appendix P to Part 110.

In looking at the FY 2006 as a representative sample, there were 452 lost or stolen sources, 213 of those sources were not recovered, 37 in NRC states and 176 in Agreement States. But I want to emphasize there were no lost or stolen Category 1 sources. There were a total of seven Category 2 or Category 3 sources, but they were all recovered.

COMMISSIONER McGAFFIGAN: They were all iridium 192, every single one? And those are the ones used in the oil and gas industry?

MR. MILLER: Right.

COMMISSIONER McGAFFIGAN: Those are the ones that are mobile?

MR. MILLER: Right.

COMMISSIONER McGAFFIGAN: So it is consistent for the last, my entire period here. I think my entire -- ten and a half years, there is something in the order of one or two iridium-192

sources, those are the only ones, Category 1 and 2, that we have not recovered, and they were so long ago they have decayed away?

MR. MILLER: They decayed away.

COMMISSIONER McGAFFIGAN: So there aren't any Category 1 and 2 sources around.

In my questioning, I'm going to talk about how I think this stuff is still grossly misleading, because the biggest -- according to the report that you gave us for one quarter, tritium, I guess, we are losing the exit signs, but that's the biggest thing we lose. And the tritium is still four or five orders of magnitude, the total sum of it, from what could be used potentially -- you imagine tritium in an RDD is almost insane, but it's not on the list.

MR. REYES: You just take a shower.

COMMISSIONER McGAFFIGAN: But it's -- you're mixing exit signs -- in your chart, you report eight microcuries of americium-241 which is eight smoke detector's worth. It's just -- it strikes me that when -- that this is the place where this report is not mixing apples and oranges. It is mixing microbes and elephants. But whatever. I'll get to that.

MR. MILLER: When you get to your questioning, I'm ready to respond, Commissioner.

COMMISSIONER McGAFFIGAN: Okay.

MR. MILLER: Slide 14.

In conclusion, all strategic and performance goals were

met for 2006. There were no adverse performance trends identified, and NRC and Agreement States are providing effective oversight.

This concludes my presentation.

MR. REYES: Before we close, I just want to make a comment that just because a program is being effective as how we measure it does not mean we're standing by. We know that there are some external reviews being conducted of the program by GAO and others. We have some internal efforts going on to make sure we take a hard look and we don't remain standing still. So, just the fact that we represent to you that in '06, fiscal year '06 we were successful, does not mean we don't know there's some areas that we need to take a hard look at.

And with that, Chairman and Commissioners, we complete our prepared remarks and we're open for questions.

CHAIRMAN KLEIN: Thank you. I think we start request Commissioner Jaczko today.

COMMISSIONER JACZKO: Just a couple of questions. One, on the seven medical events, how many of those events would you consider to be preventable?

MR. MILLER: All of them.

COMMISSIONER JACZKO: Again, recognizing that the numbers we are dealing with here are extremely low relative to the number of procedures, these are preventable events, what do we do to drive that number to zero?

MR. MILLER: Well, in each case, I mean I think that we or the Agreement State first try to get to the bottom line for why the event occurred. As I mentioned earlier, most of the time it is due to personnel error. If it results in a violation, we try to pursue corrective action with the licensee to make sure they take appropriate corrective actions.

COMMISSIONER JACZKO: And again, these are the challenges we are dealing with. I assume that probably from year to year, there is no single licensee that ever has shown up on this chart more than once.

MR. MILLER: No.

COMMISSIONER JACZKO: So it seems like to some extent this is more about looking forward and getting licensees who have not had a medical event to make sure they don't have a medical event. And I'm wondering what we are doing in that area to kind of more forward looking rather than looking back at licensees where there has been --

MR. MILLER: I mean, I think if we see a significant trend -- maybe trend is not the right word. If we start to see a common theme of something going wrong, we will put out a generic communication in addition to individual licensees. But for 1s and 2s, we don't normally do that. Recognizing that there's millions of these procedures done every year, quite honestly, our goal is to get to zero. I honestly don't think we will ever get there because of human nature

and human error and turnover and, you know, possible --

COMMISSIONER JACZKO: Do you think we are within that noise right now, or is the noise somewhere on the order of one or two events a year? Or do you think that this is where we are?

MR. MILLER: Personally, I think that we are in that noise. But nevertheless, as I said, every time I read a medical event it eats at me. It really eats at me when I read that and say how could this have happened.

MR. REYES: And I read every one of them and we discuss that. And I think the best way to answer a very good question is that we try to not only make sure that licensees get to the root cause and we are satisfied with their corrective actions, but we share the information with other licensees, whether the medical community, industrial community, to try to make sure. And we have several forums to do that, newsletters. I mean we go lower than generic communications.

We have a forum of generic communications program, but even with this very small numbers we find ways to communicate that whether one of us is making a presentation to the forum, just to try to get to zero.

MR. MILLER: We also use our Advisory Committee for the Medical Uses of Isotopes. You know, they are NRC, they are NRC part-time employees in the performance of their duties, but many of them are licensees.

MR. PANGBURN: I think just to build on Charlie and Luis' remarks -- I'm sorry, George Pangburn, FSME.

One of the effective tools that we have used in the last couple of years has been ADR, where licensees have come in and used some particularly effective, and extraordinary in some cases, corrective actions, where they have gone out and made presentations to their fellow practitioners at forums around the country.

One comes to mind in Pennsylvania that was a tool that we used that at. And in addition to doing papers in peer review journals, they also made presentations at several professional societies around the country. I think that's one where it really gets people's attention, because folks come in and talk about their experience and how their corrective actions were implemented. And that's one I think we are seeing some real benefits from.

MR. MILLER: This is a peer presentation where they basically go in and say this is what we did wrong and this is what you can have to watch out for so it doesn't happen to you. That can be very effective.

COMMISSIONER JACZKO: I appreciate it, and I certainly recognize that we are somewhere within the margin of error of zero. But probably I think, Charlie, you have said it best, that every time you see one of these events, you sit there and think why did this happen. And I think, certainly, it is good to hear that the goal is to get to zero. I think it may not be an achievable goal, given all variables

involved. But I certainly think it is something that we need to continue to work, because this agency will probably always be known for what we do with nuclear power plants.

But on a daily basis, the place where people are injured, sometimes even severely with the use of nuclear materials, is with the use of nuclear materials. And it is these things that often are lost a little bit in the work that we do, but it really is where people are getting hurt and where there are things we can do, I think it's probably an area to really put resources in to work on.

The only other just quick question I have, and I know I said I would not use very much time earlier to my fellow Commissioners, but I just would briefly ask, you mentioned that there were about 50 -- this, I guess, goes to chart on page nine. There were about 50-some events and two were enforcement actions last year, two were Severity Level II. Were the rest non-cited violations? What happened to the others?

MR. MILLER: Well, they could be Level III. They could be Level IV. They could be not cited, depending upon their -- in some cases, it can be an event and not cited.

COMMISSIONER JACZKO: Here it says there were only two Severity Level II. I assume that means there were no Severity Level I --

MR. MILLER: That's correct.

COMMISSIONER JACZKO: They were III or lower?

MR. MILLER: They were III or lower, I tried to focus on Is and IIs.

MR. REYES: The highest ones were two Level IIs. That's the highest one reached.

COMMISSIONER JACZKO: So, some may have been Level III or Level IV?

MR. MILLER: Absolutely.

MR. WEBER: They are not shown?

MR. MILLER: They are not shown on the chart.

COMMISSIONER JACZKO: Could we just get a breakdown? I don't know if it is in the background material. If it's in the background material, that's fine.

MR. MILLER: Sure. That's easy to do.

COMMISSIONER JACZKO: Thank you.

CHAIRMAN KLEIN: Commissioner Lyons.

COMMISSIONER LYONS: Let me start first thanking you, Charlie, for an excellent report and I appreciate the effort the staff put into it. I also should note that I very much concur with Commissioner Jaczko's comments, certainly our goal on the medical, on the severe medical events, has to be zero. I wish I knew how to get there. But I appreciate the efforts that you are putting into it.

Also, I assume I'm going or I believe I'm going to agree with the comments that Commissioner McGaffigan makes on the general issue --

COMMISSIONER MERRIFIELD: You said some very nice things to me yesterday in a public setting about the advice that you have taken from me since you joined the Commission, and I will always have among those, just beware of giving Ed beforehand imprint, he will run with it.

COMMISSIONER LYONS: Message received. But I think Commissioner McGaffigan was the first to raise the question of how we report loss of sources. And I appreciate your comments, Charlie, emphasizing that we have not lost -- the system has not lost Category 1, 2, or 3 sources. And I do agree that that needs to be publicized in big bold print whenever we can. And probably that will be consistent with what Ed says.

COMMISSIONER McGAFFIGAN: With a few flourishes.

COMMISSIONER LYONS: Ed will say it more colorfully, I'm sure.

The only other thing I would have asked, on Slide 11, the trending review -- I guess two comments. You made the comment, several of us have made the comment, that the criteria changed a little bit over the years. I can't help wondering if it would be possible, maybe it's impossible, but if one could maintain almost two sets of books, so that we could find out what would happen if the criteria didn't change at same time that we, perhaps, improve the criteria. Because I do worry that there could be some loss of information, as Commissioner Merrifield was pointing out, as we changed the criteria.

But I guess by way of a question on Slide 11, we talk about the, roughly, 2,000 events during the four-year period, have we asked the question of how low do we think we can drive that or are there mechanisms, perhaps more emphasize on safety culture in the materials community? Have we asked if there are mechanisms to drive that lower, which I think is the same general thrust that Commissioner Jaczko was following?

MR. MILLER: Yeah. Let me start with your line of questioning with keeping two sets of books.

That's difficult because if as a result of our criteria at any given time it didn't require an event to be reported, you would not have the information available to do the criteria.

COMMISSIONER LYONS: That's why I said it may just be impossible.

MR. MILLER: With regard to have we asked ourselves a question with regard to safety culture and things, we ask ourselves that question every day, especially in light of the fact that -- I mean, you know, in the reactor arena, the community is very adept at that. They are very familiar with that. In the materials world, it ranges from large licensees to very small one and two-person operations sometimes. So it becomes a different dynamic, especially with the use of radioactive materials in the field, radiography, well logging, it's a challenge. How do you reach all of those people all of the time?

I guess the only thing that we try to do is to continue to give due diligence to try to make sure that the industry is fully aware of our concerns in that area. And we use all this information to try to discern how we are doing.

MR. REYES: From my perspective, and I agree zero is the goal and we strive for it, the bulk of these events are related to human performance. It is not that people have bad intentions, they don't perform well. And what we have done through the years is we have modified our requirements to modify their behavior.

One that comes to mind is the alarming dosimeters for radiographers. If you go back in the data many years ago before we imposed that requirement, we had a lot more potential and actual overexposure of radiographers. So now they are required to have an alarming dosimeter, so the number has been reduced. We occasionally get the event where the radiographer would not wear the alarming dosimeter or was in a very narrow --

COMMISSIONER LYONS: Or didn't use it or --

MR. REYES: Or was in a very noisy environment, which they know in an industrial environment that there's no way they can hear the alarming dosimeter and so most of the issues are human performance issues not people with bad intention. But we need to try to continue to drive that effort through our oversight to make it zero.

COMMISSIONER LYONS: To the extent they were --
I'm sorry, Mike, go ahead.

MR. WEBER: You raised safety culture, and you may be aware that the staff is, in fact, piloting a safety culture effort to learn from the programs in place for the reactor licensees and explore to what extent some of those same elements could apply to the larger of the materials licensees, primarily focus right now on the fuel cycle facilities. So over the next couple of years we are going to be looking at to what extent could safety culture oversight program be effective for some of the larger material licensees.

COMMISSIONER LYONS: Well, to the extent we find the safety culture or other educational types of approaches could possibly drive this down, I would certainly be very supportive. But I recognized that these are still small numbers and very, very large number of usages. And I too see those daily reports every morning and am very, very frustrated that people do, in many cases, really stupid things without stopping to think.

MR. MILLER: Right. They do.

COMMISSIONER LYONS: Thank you.

CHAIRMAN KLEIN: Thank you, Commissioner Lyons.

On page 9, I see that these are significant NRC enforcement actions. Do you have a comparable one for the Agreement States?

MR. MILLER: No, sir. This is very difficult to do because the Agreement States each have different laws in the states. Not all states take enforcement in the same way that the NRC does.

Some don't have the authority to take it. Some don't have the authority to issue civil penalties. So to try to get a comparison, it is apples, oranges, pears, peaches and lemons in some cases. So it is very difficult to do in the Agreement States space.

CHAIRMAN KLEIN: So I assume during your annual review of the Agreement States program, though, that you look at --

MR. MILLER: Yes. What we look at is what authority the state has, and what they are doing in conducting those authorities. And if they have enforcement authority, are they taking appropriate action as part -- we do that as part of the IMPEP process, that's correct. But it is not the same as across the 34 states.

COMMISSIONER MERRIFIELD: Mr. Chairman, there's a lot you learn when you have been here nine years and you learn something new every day. I guess I didn't fully appreciate the extent of the limitations on some of the states on civil enforcement.

MR. MILLER: And it goes beyond nuclear. You know what I'm saying? The laws are set up to encompass many things.

COMMISSIONER MERRIFIELD: Have we have handed off Agreement State authority and some states cannot enforce on it? Is that what you're saying?

MS. CYR: Mostly it's civil penalties. The question is -- I mean, the Commission made a decision it was not going to require that they have civil penalty authority in order to be able to be a compatible program. But they do have various kinds of enforcement

authority.

In many cases, it's the state AG office takes the enforcement action, I mean, so that the individual program itself does not. So they have a process by which the, whatever the oversight program recommends, cases to the Attorney General for enforcement action.

MR. REYES: They have the ultimate enforcement. They can cancel the license. So it's just that when you get into the scheme --

COMMISSIONER MERRIFIELD: That's your ultimate enforcement authority. It's used either rarely or never by a regulator.

MR. REYES: But then the question is, do you measure who gives \$3,000 civil penalty versus who doesn't give \$3,000 civil penalty. In each state it is different.

COMMISSIONER MERRIFIELD: Just one last follow-up question. When did the Commission make that determination?

MS. CYR: I couldn't tell you.

COMMISSIONER McGAFFIGAN: A long, long time ago.

COMMISSIONER MERRIFIELD: It predated any member on the current Commission, I take it.

CHAIRMAN KLEIN: It certainly predated me.

MS. CYR: I think it was either at the time they established the program or shortly thereafter.

COMMISSIONER McGAFFIGAN: The Atomic Energy

Commission would have been here.

COMMISSIONER MERRIFIELD: In the '60s.

MS. CYR: No. This was established in 1993, approximately, when we put in place the IMPEP program. And there have been some changes to it. And I don't believe that the civil penalty authority decision was made as an initial part of that. My recollection is, though I'll have to check that -- is that particular piece was looked at some somewhat later.

COMMISSIONER McGAFFIGAN: Presumably Agreement States existed in large number in 1993 or '91, and we didn't have the authority to fine people before that. So in some sense, if the Commission made a decision in '93 --

MS. CYR: We had the authority to impose civil penalties at that point in time.

COMMISSIONER McGAFFIGAN: We had the authority to impose civil penalties on Agreement State licensees?

MS. CYR: No, no, not on Agreement State licensees. But the Commission said, in a sense made a decision that they did not have to have the authority to impose civil penalties in order to -- they had to have some ability to enforce their program. And we looked at what that was in terms of when we agreed and signed off on the program.

CHAIRMAN KLEIN: It might be interesting to provide us a chart with those states that do have civil penalties and those that

don't, just to give an order of magnitude. Because I certainly, from my experience, Texas does give civil penalties.

MS. CYR: Many states do.

MR. REYES: And the death penalty, we know. But not everybody thinks that way.

COMMISSIONER MERRIFIELD: Mr. Chairman, this is -- underscore -- this is not the first time nor, I suspect, even after I leave the Commission, the last time in which had I been around when they had created the Agreement State program, I would have done thing as little differently. But anyway.

COMMISSIONER JACZKO: Could I follow-up on this, because this is an interesting topic.

Thinking outside the box, are there other mechanisms that states can use for enforcement short of taking away a license if they don't have civil penalties?

MR. REYES: You can modify it. You can simply modify the license. You can require them to do more.

COMMISSIONER JACZKO: If they are not doing what they were supposed to be doing in the first place, how do you get them -- I guess I'm just wondering, is there public reporting?

MR. MILLER: They can take enforcement action without the civil penalty in some states where they require corrective actions on the part of the licensees, the same as we would. But license conditions --

MR. REYES: You say you stop the operation until we are satisfied that you took corrective action so you can run your business.

COMMISSIONER JACZKO: So this is not necessarily revoking a license, but it's --

MR. REYES: We do it all the time. We call them and say, and what are you going to do -- if we are in the middle of something and then they cancel all the procedures at the hospital until we get our -- so you have a lot of power -- it's probably more expensive. We have had situations where a hospital has to call all the patients for that week and say we are not doing any procedure this is week until we sort this out. Clearly, that was a bigger business impact to all involved than the penalty we sanctioned.

MS. CYR: My colleague just pointed out, basically at the time that the Agreement State program was established, NRC did not have civil penalty authority. But the authority we received, we received the authority to impose civil penalties after the Agreement State program began.

COMMISSIONER MERRIFIELD: Did the Commission at that point then reassess whether it wanted to impose a requirement for civil penalties on the states?

MS. CYR: No.

COMMISSIONER MERRIFIELD: Is there anything that would prevent the Commission from doing so?

MS. CYR: I would want to look at that pretty seriously. But whether, in fact, that I would have to require that the state have to have a civil penalty authority in order to be able to have an Agreement State program to be compatible -- I mean, the Commission has changed its view over the years about how important civil penalties authority are and when and what circumstances it needs to impose civil penalties. And it has basically, in the sense, reduced the situation in which we impose civil penalties substantially over the years.

So, the question whether of, in fact, that is the only effective -- and I don't think the Commission has taken a position of that -- is the only effective way to have a compatible program to protect public health and safety.

CHAIRMAN KLEIN: My guess is stopping operations is probably more significant than the civil penalty process.

MR. REYES: Much more significant.

CHAIRMAN KLEIN: So then, we get into a discussion of how one enforces, which is the best way, whether it's civil penalties verses stopping actions and so forth. My guess is that every state has a hammer. It's just how they use it and the hammer is different.

COMMISSIONER MERRIFIELD: Mr. Chairman, the United States has had nuclear weapons since the mid-1940's, and that has not stopped a lot of small-scale conflicts which nuclear weapons are not appropriate. I mean, you can have a very major hammer, but the likelihood you are actually going to want to use it is

very rare. You were a state regulator, if your only tool is to take away their program shut them down, you are going to be very adverse to using that. If you have the tool of civil penalties, it does allow you to more fine tuned, it seems to me.

CHAIRMAN KLEIN: From my observation in my former role, we used the penalty of stopping action much more than civil penalties because that's immediate. And it has much more of an impact than the actual punitive civil penalties. But it probably varies from application to application.

Well, I will clarify my compliment to Commissioner McGaffigan in clarifying my phrase. I expect him to say on his, on Slide 3 about the lost and stolen sources that we do need to look at the level of which those are. And I will certainly concur with my expectation of that issue that he will raise. But I do have a question on lost and stolen sources.

Have you looked tagging and tracking?

MR. MILLER: I'm sorry?

CHAIRMAN KLEIN: Tag and track systems of the big sources, tag and track?

COMMISSIONER McGAFFIGAN: We have a petition for rule making from the Governor of the State of Washington.

MR. MILLER: There is a petition for rulemaking in the State of Washington, yes, on that regard.

MR. REYES: So we are going through that process

now.

MR. WEBER: We also examined that after 9/11 as part of the task force that we had with the Department of Energy. We looked at the use of radio frequency ID tags and various other kinds of labels. And ultimately at that point, which did come to the Commission for review, the decision was not to require that at that time. But now it is being looked at again.

CHAIRMAN KLEIN: That technology is changing quite rapidly. And so for big sources there are tag and track systems now that we may want to look at. So I would encourage the staff to look at those sources we are really concerned about to tag and track.

Commissioner McGaffigan.

COMMISSIONER JACZKO: Just to follow up on that question. Right now would the National Source Tracking System be able to accommodate some kind of tagging and tracking, would the infrastructure be able to incorporate that?

MR. MILLER: It is not designed for tagging. I mean, it is designed to be able to track realtime, I mean, the transaction when sources move around.

MR. REYES: But it does not have a GPIS where it monitor location.

MR. MILLER: It is not going to follow it in transit.

COMMISSIONER JACZKO: But would you be able to incorporate the idea of -- at least if there is a feel for some kind of

tracking, the tag or whatever, something like that? Is there no capability right now in the National Source Tracking System?

MR. MILLER: It would have identification information in there of the source.

MR. REYES: You are talking about communication verses radio frequency, it does not have that.

COMMISSIONER McGAFFIGAN: The tagging and tracking, I mean it strikes me it may make some sense, but we have to recognize, and I think it's outside the National Source Tracking System, but I think we have to recognize that it's going to be tagging more the device than the source. That still gives you a head start. If the source doesn't get removed from the device, it will take you right there. Fed Ex would know where the stuff is.

So it is a possible technology and as Chairman said, it is getting cheaper. And the Governor of Washington Petition for Rulemaking we should take seriously. But, again, we are going to run to this Agreement State issue as to whether all the Agreement States are going to be happy about that or not.

MR. REYES: I'm sure they are going to comment.

COMMISSIONER McGAFFIGAN: Some of them want to and, obviously the State of Washington wants to, and some of them are going to be opposed. That is an a issue for another day.

Let me get to the questioning. I do appreciate your efforts to try to do a little bit better in talking about this stuff. You

made the point that no significant sources have been lost last year, and it's now true for many years, and the ones that do get lost and not recovered -- the ones that do get lost are all iridium 192, which is the least attractive of the IAEA isotopes because it has a 73 or 74-day half life, so it goes away quickly. That's great.

We told you to do that last year and in the fourth quarter NMED report in small print on one of the pages, it does say that, zero unrecovered losses or thefts of significant radioactive sources. I think that NMED, as I have said in another forum, is sort of broken. It's Graham Allison Model Two stuff -- bureaucracies will do tomorrow what they did today, and do today what they did yesterday.

I think some of the stuff that you have in the fourth quarter NMED report -- and you had it in your own -- saying there is 1,972 cases and largest number is 950 lost or abandoned sources is an absolute invitation to misinterpret. These sources are mostly Category 5 -- I mean, very low Category 5 sources, threshold for americium-241 is one billionth of a curie. The higher threshold, the thousand times threshold -- these numbers come from 10 CFR Part 20, Appendix C, the higher threshold is one microcurie of americium-241, which is the amount that you have in smoke detector in your home, approximately.

Some of the comparisons made when you guys do executive summaries I think are just crazy. Other Commissioners were rightly concerned with the 150 of 1,972 medical events, because

those are significant. Radiation overexposure events, 51, those are significant.

What we are tapping here is a long written, a long ago written regulation, Appendix C, and we probably established these requirements because and I don't know what a billionth of a curie of americium-241 might do to me, but we established them for some reason sometime back in the '60s or '70s. Probably it was the AEC. And I think you just have to -- you have to rethink it. It will be disruptive, but it sounds like you guys change things a little bit all the time. But I think the Code of Conduct should be our model, not the discussion you guys have up front.

And I think that it is terribly dangerous to cross compare these various areas. So the fact is that aside from the three iridium sources that we did recover in that quarter, the last quarter, tritium, 100 curies of tritium has not been recovered, which is about ten exit signs. And I think we have to put this -- I think we have a problem here that needs to be fixed. And I would be interested in your reaction.

MR. MILLER: Yes. Okay. First of all, Commissioner, what you saw presented today in the pie chart that we presented was a first attempt. I have personally taken this on. I have spent a fair amount of time in the last couple of weeks dissecting comments that you have made in this regard and studying those and the support of your colleagues with regard to your comments. And I would like to

say that I think you have got some very valid views.

I went back and tried to look back at the NMED report reflecting on the views that you've passed forward. And I have to say that I agree with you. I'm going to take on the challenge personally this year of working with my staff and the contractor to try to see if there is a better way -- there is a better way that we can portray the information in the report as it relates to source security.

I think if you look at the executive summary -- sometimes you can get too close to things, and if you take a step back and look at it, I can see how another reader might get those impressions. I mean, it really hit me between the eyes when I kind of dug through your analysis. With that said --

COMMISSIONER McGAFFIGAN: I appreciate the comment you made to one of the other Commissioners, perhaps it was Commissioner Jaczko, about how the medical events, the 150 medical events, really eat at you.

MR. MILLER: They do.

COMMISSIONER McGAFFIGAN: Losing a couple of smoke detectors should not be burdening your nights.

MR. MILLER: But that said, I don't want to throw the baby out with the bath water. This reports covers more than source security. I want to make sure that it's still useful to our readers.

We been doing this report, I guess, for four or five years now. And it is still a work in progress for improvement. And I think

there's a lot of improvements that can be made. But the report is shared with our Agreement States so that they have utilization of it. We do a lot of things with this report, including being able to look at even lower activity, lower safety significant items to see if there is precursors there that we need to be paying some attention to so that worst things won't happen.

So we use it for a lot of reasons, but I think that we can do a lot of -- I think that we can do a lot to portray the security area to really show the state of affairs much better than we have done.

COMMISSIONER McGAFFIGAN: Some of those things can be done in separate reports, I think. 10 CFR Part 20, Appendix C, exists for a reason. I will admit to my colleagues that I was not here when that was done and I have not memorized it. But the reasons, given of the thresholds, have to be, you know, they are trends where you might possibly, possibly, if you had aggregation and repetition, get some minor dose.

And then in some of these other areas worker exposure, medical, you are getting real doses to real people. And then you are saying -- the part that bothers me the most is well, our biggest problem in the summary is the sources, when it's the most, from a public health and safety perspective, it is the least.

So I just urge to you think about it, and my colleagues will, I hope I have not said anything to lose anybody, and the couple of colleagues who have not voted yet will vote on the paper.

The other thought I had, and it is not really relevant to this meeting, but I'm going to bring it up because I have the right people in the room, I think we need a better ability, and I think we can do it on our web page in your area, to talk about radiation in normal life. I've been, even this morning to the EPA rad town USA web page. They don't use numbers. They don't really look at all sources of radiation.

What I'm looking for is, and I know we have it, some of the health physicists in this agency have it, is information that the public should have about where NRC regulates, here are where various regulations are and here's where various things happen in the natural world. We are going to get the NCRP report later this year that's going to perhaps say the largest dose is -- and this is attributed to Commissioner Lyons -- the largest doses today may be for medical. There was a hint of that in the UNSCEAR report in 2000, and we may well be at -- you know, the 300 number that is sort of the conical number that we get from nature and the 60, which is the conical number we get from medical, that 60 may be 300 or more today.

So that is something we can put in. But double beds which is one of my favorites, or buying granite counter tops for your home, taking flights to Las Vegas round trip -- especially dangerous -- but putting things in context, because I don't think that we as a nation -- the EPA page does not do it -- I would like to get into a situation where there are baselines.

I got caught by Senator Voinovich at the last meeting, I tried to say that 10 microcuries of cesium was not RDD. And what's a microcurie? Sorry, Senator, it is a factor of a million from being a Category 2 source approximately. He understood factors of a million. But we need at some point to have a place where some of the stuff that is in my head -- and I know Pete is enthusiastic about this, and he can carry on.

But we should have a place on our web page where we show where we regulate, for air, it's ten millirems, for this it's per year, for ground water, it's three or four -- the actual achievements that we get which is far below where we regulate -- sort of put our regulations in context of nature and medicine. And I think that would be useful. It would be useful to have. It would be a good educational device. HHS and EPA could also do it. But you got people that can do this very rapidly and give you a start. It for the conversations. The public does not understand this stuff.

Senator Voinovich correctly upbraided me when I started going to microcuries of cesium.

MR. REYES: We have a pictorial on that. The agency created it about 15 years ago. I'm dating myself. But we had it in a pamphlet. And what we need to do is we need to take that, update it and present it in a way for today's consumption on the web page.

COMMISSIONER McGAFFIGAN: And the granite countertops that are the big thing nowadays, I don't know --

MR. REYES: You just saved me over \$3,000.

COMMISSIONER McGAFFIGAN: Take your micrometer home and show your wife and see if she still wants them. If she is not going to spend a lot of time in the kitchen except cooking, you can calculate her dose.

MR. WEBER: You're not implying that it's unsafe?

COMMISSIONER McGAFFIGAN: I'm not implying any of this unsafe. Double beds are perfectly safe. You get about two millirem a year from your wife as her potassium 40, irradiates you and you irradiate her.

COMMISSIONER MERRIFIELD: Ed, I was going to say you had me up until the granite countertops. Coming from New Hampshire, which is known as the granite state, I cannot discourage Luis' wife from spending his money on high quality granite for his countertops.

COMMISSIONER McGAFFIGAN: I think I have offended everybody with this. I got flights to Nevada, granite from New Hampshire, maybe that is why this is never done, but somebody needs to do it. New Mexico has a lot of radiation too.

MR. MILLER: It is a risk-informed decision.

COMMISSIONER McGAFFIGAN: I'd like to make everything risk-informed.

COMMISSIONER LYONS: If I could just endorse what Ed has said. I think those are very, very comments. And I think

implicit in what you said too, Ed, as we show some of these values, pictorially or whatever, we need to show the variation. The variation across the country in so many of these factors is gigantic. And then we try to regulate to minute -- to tiny fractions of the variation.

And by the way, you mentioned the NCRP. The preliminary NCRP number, which still is going to go through for further peer review, is 320 annually. So it is going to go --

COMMISSIONER McGAFFIGAN: Up from 60.

COMMISSIONER LYONS: From 60. That's the preliminary number. It's been released publicly, but it's going through the peer review process.

COMMISSIONER McGAFFIGAN: That does not include people like me who have had doses that go beyond diagnostic to therapeutic.

COMMISSIONER LYONS: It is an average.

COMMISSIONER McGAFFIGAN: It is an average diagnostic dose, isn't it?

COMMISSIONER LYONS: I don't know that it excludes therapeutic. My guess is that if you would average over the country therapeutic would be very small. But that is a good point. I don't know the answer.

COMMISSIONER McGAFFIGAN: It's just that thallium stress tests for your heart, PET scans, all the other new things that have come along, the best use CT scans, your children getting much

more dose -- I think you get 50 millirems or something when you get braces, not the bite wings. Bite wings are trivial. But when you get a full mouth X-ray it's more significant.

But, it's used -- if you include all those new practices, orthodontics and treating heart disease and treating other diseases, the doses have gone up enormously since the 1960's number that we and everybody uses on our web pages, you know, what's the dose for medicine.

CHAIRMAN KLEIN: I think that is one of the areas the NRC can do a better job in the education, let people know what those areas are. And I think that would be a good public service.

COMMISSIONER McGAFFIGAN: Mr. Chairman, my last comment, and I think this is fair, but is it fair to identify the licensee that we are doing to talk about upstairs, because I think he has been identified in the reports and --

MR. REYES: It has been covered in the report to Congress. That is public.

COMMISSIONER McGAFFIGAN: There is one licensee that the staff did identify not in Charlie's area, but in Mike's area that we are going to go upstairs and discuss, and that's PFS.

COMMISSIONER MERRIFIELD: Nuclear Fuel Services.

COMMISSIONER McGAFFIGAN: Nuclear Fuel Services. Sorry, I almost messed it up. Too many acronyms.

MR. MILLER: PFS is really safe.

COMMISSIONER McGAFFIGAN: PFS is as safe as it's ever going to be.

CHAIRMAN KLEIN: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Mr. Chairman, picking up on Ed's last comment. When I got here in '98, one of the things that I thought the agency ought to do a better job in is education. And think we are doing a better job. The staff deserves a lot of credit for improving the website.

Historically, I think there's been a lot of reticence about doing much on education because folks were concerned that that would be perceived as promotional. And in a report I did for former Chairman Nils Diaz on communications, I pointed out I thought that was not the right place for to us be, and that I think our agency does have a role in educating the public about the different uses of our radiation in society and providing them non-biased information about some of those impacts. My hope is as the agency guess on, and I think Ed is right, more can be done to assist in that arena.

I was struck, I have heard Ed's suggestion before, and I was struck thinking -- I know the chart Luis was talking about in terms of listing a variety of different things. And I think what really is needed is something beyond that.

Technologically today, one can conceptualize, for lack of a better word, a radiation calculator, where you could plug in

someone's zip code and get information about the general background radiation doses that that person might encounter. And then using a variety of numbers, you could plug in how many transatlantic or transpacific air flights have you taken in a given year, what medical procedures have you had in a given year, do you eat a lot of Brazil nuts, bananas, do you sleep in a double bed -- there is any number of things that you could plug in to come up with some range of numbers. And it would be an interesting educational tool.

And I think what would be most beneficial about it -- you know, when are you on the web, it's always good to have something that draws people, and something like that would have a lot of -- it would get a lot of kids and a lot of educators, and I think would draw people to our website that otherwise would not think of doing so today.

My vision has always been and I hope some day the agency will get there, that if people want to know about what's going on with nuclear issues or radiation, that we -- that the NRC be the web site of choice. And I think Ed's suggestion and mine are consistent with that. I hope those of you remain can embrace that.

Going to a couple of issues, going back on Slide 8 that we have beat pretty well into the ground, but one element of that -- a couple of elements of that I want to touch to. Overall, I think Charlie mentioned we had 37 reportable events related to medical uses of isotopes. And that is a really low number. I mean, I don't disagree with the notion we ought to try to go for zero. But I think looking at

that glass as being half full, we regulate the safest medical technology in the country.

People who go in for these procedures are less likely to be subject to malpractice than anywhere else in the medical community, and I don't think we should forget that. This is really an amazing sense of accomplishment. You have a greater than or somewhere in the range of a one in a million chance that you are going to run into trouble in this arena. And knowing how the Chairman likes Six Sigma, that's pretty good.

Now, that having been said, as it relates to medical exposures, one of the things on Slide 8 in the purple of the chart is medical exposures in does to embryo. And doses to embryo -- and Ed and I have had a number of occasions where we have talked about this over the years -- that one ought to be zero.

COMMISSIONER McGAFFIGAN: But the women don't -- a lot of those come she doesn't --

COMMISSIONER MERRIFIELD: They don't know.

And let me finish my point. I know we have been trying work on various things to try to improve that. It just strikes me in a day and age when you can go down to the local CVS and buy a \$8 urinalysis test, why we don't require that for people between -- it may be medical ethics issues and rights issues and all that.

MR. REYES: Hospitals are coming around to that, but that has been the issue. The female patient swears there is no way I

can be pregnant. So the hospital takes their word for that. And the way it's being resolved is that the hospitals are now saying it does not matter, in order for us -- our protocol is in order for us to give you this procedure, diagnostic procedure, is that you have to take a pregnancy test. The places that do that will never see the problem.

COMMISSIONER MERRIFIELD: Mr. Chairman, that goes to the final point I would like to make I'm at the end of my term, so I'm not at a point of putting in a COM to suggest that we impose that. But I got to say, when you read the stories of people having to abort children because the questions were not asked or they were not answered or they were uninformed, when if we can avoid that by, if we can, if this agency can, in imposing a requirement for a simple over-the-counter pregnancy test, I think that's something we ought to do. That should be zero. And it seems to me we technologically can get there.

The last thing I would say is, and Ed mentioned, I'm going a little bit further. We are going to have a closed session with NFS Erwin after we adjourn this particular meeting. Now, I had been -- I will take, depending on where you are standing, the credit or blame. I'm the one who is probably been among the loudest voices in terms of our engaging with our licensees in these meetings. I think it is the right thing to do.

Now, unfortunately, for my part, I didn't really focus on this meeting probably as soon as I should have. It had been my

expectation when I had proposed that we have that kind of engagement, that that be an engagement that we can do in a public setting not in a closed session. Having looked at slides that NSF will be presenting, nothing strikes me in there that wouldn't otherwise be issues that could be presented in a public arena.

Now, obviously, there are proprietary issues that could arise, and for that reason, having a closed version of that might seem to make sense. But if I were going to be remaining on the Commission, I can tell you next year, I would have insisted that we have as much of that in the open to the extent possible. I think a lot of that could otherwise have been in an open arena.

Now Dwight Ferguson, his team are going to benefit from the fact they don't have to be subjected to that this time around, but I think in the future, if it were me, I would certainly suggest to my fellow members that we may want to rethink the proposal the staff has made in that regard.

COMMISSIONER McGAFFIGAN: And I, Mr. Chairman, would have agreed that part of it could have been open. I think we are getting some heat at the moment for how long we withheld that. I think we did all the right things. We are doing all the right things in terms of holding NFS's feet to fire. But some of the Congress, I think, are rightfully saying, well, this didn't show up in last year's abnormal occurrence report -- it is a place where we just need to think.

COMMISSIONER MERRIFIELD: By the way, my

comments are not specifically directed at NFS Erwin. We will engage with them appropriately in the next meeting. But my comment was more generic in nature. If we bring these licensees in as part of the AARM process, I think they ought to sit at the table in a public area.

Thank you, Mr. Chairman.

CHAIRMAN KLEIN: Any other comments?

Well, thank you for a good presentation. I think you can tell there are some issues that we have concerns about. A look at the actual quantities and values of sources rather than just numbers that might be lost or stolen, the risk you always run is if you focus so much on those, you might miss bigger issues that we need to look at for vulnerabilities and otherwise. So it's important to look at some of the bigger pictures that may be out there.

The meeting adjourned. Thank you.