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10 CFR Part 20: Public Meeting

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NUCLEAR REGULATORY COMMISSION

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ADVANCE NOTICE OF PROPOSED RULEMAKING

10 CFR PART 20

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PUBLIC MEETING

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THURSDAY

OCTOBER 16, 2014

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The Public Meeting convened in O3B04, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, at 1:00 p.m., Richard Chang, facilitator, presiding.

NRC STAFF PRESENT:

RICHARD CHANG

RICHARD CONATSER

DONALD COOL

MICHELE DeSOUZA

STEVE GARRY

VINCE HOLOHAN

CARDELIA MAUPIN

ROGER PEDERSON

SOLOMON SAHLE

ALSO PRESENT:

ELLEN ANDERSON, NEI

KEITH BROWN, University of Pennsylvania

JAMES CARSWELL, Southern Nuclear

MARVIN LEWIS

RALPH LIETO, Saint Joseph Mercy Health System

RUTH THOMAS

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

(1:03 p.m.)

OPERATOR: Welcome and thank you for standing by. At this time, all participants are in a listen-only mode until the question and answer sessions of today's conference. At those times, you may press *1 on your touch tone phone to ask a question.

I would now like to turn the conference over to Mr. Richard Chang. Thank you, you may begin.

MR. CHANG: Thank you. Good afternoon, everyone. My name is Richard Chang from the NRC's office of Nuclear Materials Safety and Safeguards, or NMSS. I'd like to welcome you to today's meeting.

I'll be serving as your facilitator today, and my role is to help ensure that today's session is both informative as well as productive. Today's session is the fourth of several meetings to receive input from stakeholders on the development of a draft regulatory basis to support potential changes to the NRC's current radiation protection regulations contained in 10 CFR Part 20, Standards for Protection Against Radiation.

The goal of this effort is to achieve greater alignment between 10 CFR Part 20 and the 2007 recommendations of the International Commission on

Radiological Protection contained in ICRP Publication 103.

On September 24th, we held our kickoff meeting for this effort. At that meeting, we provided a general overview, background information, a general discussion of the main issues and a discussion of plans for upcoming meetings.

Our meeting on October 2nd focused on updates to 10 CFR 20 to align with the International Commission on Radiological Protection Publication 103, methodology and terminology, as well as occupational dose limits for the lens of the eye.

Last Thursday, we focused on dose limits for embryos and the fetus of a declared pregnant occupational worker, and on individual protection in ALARA of planning.

Today, our focus is on Issue 6: Reporting of Occupational Exposures, and Issue 5: Metrication Units of Radiation Exposure. Specific questions on these topics were included in the Advance Notice of Proposed Rulemaking, or ANPR, published in the Federal Register on July 25, 2014.

You can access the ANPR through our Agency-wide Document Access and Management System, ADAMS. The accession number is ML 14183B015.

This is a category 3 public meeting, which means that numbers of the public can participate at designated points throughout the meeting. Hopefully everyone has signed in and received copies of the handouts. These include the meeting agenda, the presentation slides, the Federal Register notice that contains the ANPR, and the staff's issue papers on today's topics, as well as a feedback form.

You can sign in, and find all the material in the hall right outside. For the folks on the phone, you can find the material included with the meeting announcement on the NRC website. Before I introduce our speakers, I'd like to take a few minutes to go through some logistics.

First, this meeting is being transcribed. So, we want to make sure that our transcriber, John, can get a clear copy of this meeting. Therefore, we ask that you please turn off or mute any device and that you minimize side conversations.

Also, we want everyone to know that though your feedback will be included on the transcript, only written comments will be addressed in the regulatory basis. So, please be sure to submit your comments in writing.

We'll tell you how you can do that during

the meeting. To get to the restrooms, just head down the hallway and turn left for the men's room. Turn right for the ladies' room.

If we're asked to evacuate the building, please follow staff directions, and we'll keep everyone together as best as we can, and as we muster outside and make sure that we can account for everyone.

At the end of the meeting, please complete the feedback forms and return them to us. The feedback you provide on the forms is important, and helps us to continually improve our meetings. So, there will be opportunities for us to ask questions for each topic as identified in the agenda.

In addition, towards the end of this meeting, questions from previous topics related to this advanced notice of proposed rulemaking will be addressed.

For folks on the phone, be aware that you'll be muted until we're ready to take your questions and comments.

We have our operator, Sheila, helping us with this. So, when you want to speak, just press *1. This will let me know that you wish to speak. I'll then ask the operator to unmute you, and you'll be able to speak.

For all speakers, please identify yourself and your organization. We're going to try hard to stay on time. We'll have to be flexible on how much time we'll have for both questions and comments. Any questions at this time?

Okay, well, let's get started. Let me introduce our first speaker, Ms. Cardelia Maupin, a senior project manager in our Office of Nuclear Materials Safety and Safeguards. Cardelia will discuss reporting of occupational exposures. Cardelia?

MS. MAUPIN: Thank you, everyone. Thank you for joining us today. Could I have the next slide, please?

Occupational dose reporting requirements are contained in NRC 10 CFR 20.2206. These provisions require seven categories of licensees to provide on an annual basis reports to the NRC by April 30th of each year. As you can see, these include commercial power plants, industrial radiographers, fuel processors, independent spent fuel storage installations, manufacturers and distributers of certain byproduct materials.

In this category, NRC licensees that include nuclear pharmacies would also be covered in that

area. Also, other manufacturers and distributors of what we call our type A licensees.

Right now, we also have low level waste facilities, and high level waste facilities captured in those categories, but as you're aware, the NRC at the present time has no licensees that are in those categories. As such, there are no licensees that are currently in NRC's Radiation Exposure Information and Reporting System, which will from here forward be referred to as REIRS. Next slide, please.

The reporting requirements were first adopted by the NRC back in December of 1968. When those requirements were first put in place, the NRC came up with, in their statements of consideration, what they thought were the purpose or the objective of these reporting requirements, and these were to identify those individuals whose occupational exposures are monitored by more than one licensee.

We still have that concern today. Also, the evaluation of occupational exposure trends from year-to-year; once again, we still have that concern. Implementation of corrective and effective measures for trends indicate increased radiation exposures.

We would like to look into that. And also, as we all -- at the present time, the development of any

potential revisions to our radiation protection standards. Next slide, please.

After a series of amendments in the 80's time frame, we initially were at four categories, but we came up with the present seven. When we made our amendments to Part 20 back in 1991, in our statements of consideration, we added the following purpose for requiring these reporting requirements.

They included the evaluation of the risk of radiation exposure associated with activities in NRC licensed facilities, the assessment of licensee's Radiation Protection Program, and the evaluation of the effectiveness of NRC's regulatory program. Next slide, please.

In an SRM dated December 17 of 2012, the Commission directed the staff to improve the reporting of occupational exposure by NRC and Agreement State licensees, some of which do not currently submit reports. Next slide.

In looking at the direction to the staff from the Commission, one must fully understand the existing regulatory framework. With the passage of the -- with the amendment of Atomic Energy Act in 1959 to add Section 274B, which provided for the Agreement State Program, we see the opportunity for the NRC to

relinquish authority in certain areas, and for the states to assume that -- to assume those responsibilities under their state laws and under their state regulations.

At present, we have 37 Agreement States who have taken advantage of that opportunity, and the Agreement States regulate the majority of the radioactive material in this country. It is estimated that we have approximately 22,400 radioactive material licensees that have been issued in this country for medical, academic, industrial and general uses.

Of that, 87 percent are regulated by the agreement states, and only 12.5 is regulated by the NRC. To further complicate the direction that has been given by the Commission, the Agreement States are not required to adopt the reporting requirements in 10 CFR 20.2206.

As such, 87.5 percent -- at a minimum, at least 87.5 percent of the radioactive material licensees are not captured in our current REIRS database. More over, medical licensees, along with a number of other categories of NRC radioactive materials licensees identified in the reporting issue paper are not subject to NRC's reporting requirements.

So, NRC's own medical licensees are not required to report. You add on that -- so, in looking

at this overall regulatory framework, you have the issue of the Agreement States. You have the majority of the radioactive material licensees in this country. Then you have the medical licensees in all these other categories, who, even though they're in NRC's jurisdiction, they're not required to report.

So, NRC is unable to develop an overall assessment of the occupational doses from the various uses of representative material in this country. So, in order for the staff really to address this issue, there has to be, there must be, extensive cooperation and collaboration between the NRC, the agreement states, and representative material licensees.

That's the only way this issue of improving the reporting of occupational exposure can be addressed. Next slide, please.

Now, when you think of these additional categories, some people might just say, "Medical." But there's a lot of different applications that you very well know in terms of medical applications. The technology is constantly evolving almost at a phenomenal pace.

So, you just can't say, "Medical." You also have to look at the different types of quantities that a license authorizes, because there -- some

licensees are authorized large quantities of representative material, such as a broad scope medical institution, who might even have some PET operations onsite.

So, the more quantities authorized to the way the potential of more occupational exposure. So, we're also looking in terms of proposals. How should we engage the Agreement States in terms of which are definitely our regulatory partners, with 87.5 percent of the radioactive materials licensees? Cannot be ignored.

How are we going to engage them on this issue? How -- how should these requirements be adopted? Should we modify the adoption of these requirements? Because as I said previously, they are not currently required to adopt these requirements.

So, then to add onto that, we are currently in the process of looking at our whole policy statement concerning Agreement States. So, we're in this quasi framework right now in terms of the Agreement States.

So, one other issue is whether or not we should explore mechanisms for our central repository for occupational exposure reporting with some kind of user accessibility. So, maybe there could be some way that persons -- as I said, like with the Agreement

States, when we first came up with the concept of them entering their various -- when we had the NMED Data System, they had to come to us. They had to register. They had to get some kind of passwords to access the system.

Maybe we could think about something similar if we have an overall repository for occupational exposure reporting. Next slide, please.

This gets us to, I think, some essential questions that the staff has come up with. Now, of course we don't have the universe of all the questions that should be asked in this area. But these are some of the questions that we have come up with.

Please, please feel free when you comment; we're hoping that we get a lot of feedback on this issue. Question 1, we put that out there to just stimulate you and assist you in commenting. That was, "What criteria should the NRC use to identify additional categories of licensees that should be required to submit annual occupational exposure reports?"

Number 2: What are the benefits of collecting occupational exposure information in one central datable in order to assess the total annual occupational exposure of those individuals who work at more than one licensed facility, or a contractor

facility, during the calendar year, and received occupational exposures at these facilities?

At the last meeting, we -- and in the papers, we touched on the fact that living in the Washington Metropolitan area, you might have a physician who maybe works in Virginia, might practice in Virginia, Maryland or D.C. And so, he might be getting exposures not only in two different Agreement States, and the NRC. And how would you account for those different exposures? Next slide.

Question 3: Should Agreement States be required to adopt -- adopt regulations that are compatible with occupational reporting requirements? Number 4: Should the NRC consider a gradual expansion of the requirements for various licensee categories in a stepwise fashion?

If you look historically at the development of this regulation, as I said earlier, initially, there were four categories that were reporting. Then in the 80's, that is when we increased it to the current seven categories that we have in place. So, there historically was this gradual expansion of the categories of licensees that were required to report.

Number 5: What are the potential implications and occupational costs associated with

expanding the occupational exposure reporting requirements? Historically, back in 1978, when we went out with this previously to get all the specific licensees to report, including medical licensees, we got a lot of push back, including the fact for why we are probably here now, is that it would increase the costs of medicine -- of healthcare in the country because of additional paperwork or reporting requirements. We might hear that again. Next slide, please.

I also would greatly -- we would certainly greatly appreciate you stakeholders taking a look at the various charts in the issue paper where we went through an extensive amount of time to go through and look at NRC's current program of licensing radioactive material.

We went through and put in all the various different types of licensees that the NRC currently licensed in terms of radioactive material, and we were certainly -- it would certainly be helpful if you could provide us any information in terms of these categories, in terms of the amount of occupational exposure for these various categories from your knowledge or from your experience, and also whether or not these categories should be included in terms of reporting

information to REIRS. Next slide, please.

In summary, we will be accepting comments until November 24th, which is the closing date of our ANPR. We have information here on how you can access the background information on the Part 20 effort. In addition, we are placing all the information relative to these meetings on our outreach website, which is noted at the bottom.

So, we want to make sure that the stakeholders are fully informed on how to -- one, how you can submit your comments, and two, how you can get additional information on this effort. So, thank you very much. Are there any questions?

MR. CHANG: Thanks, Cardelia. Are there any questions or comments? At this point, I'd like to open it up for members of the public to speak. I would also like to remind everyone that NRC staff will try in most, or in all cases, to answer your questions. But in certain cases, your questions may not have answers now because NRC staff is still working to develop positions on some of these issues.

Your questions will be factored into the development of our considerations as part of this advanced notice of proposed rulemaking. First, is there anyone here at headquarters who would like to

speak?

MR. BROWN: Keith Brown, University of Pennsylvania. I'll state within many universities, there is support for the idea of having essentially an anonymous database in which one could measure dose performance of given categories of workers so that one could track their own efforts against those of sister institutions.

Beyond that, I think there's a lot less support simply because in those categories that the NRC regulates, we for the most part don't have very high doses. We don't see that there is a tremendous issue.

When you deal with doses in the X-ray world, and those are somewhat different in that they can be shallow, but you largely don't have doses from byproduct material.

I was going to ask the NRC in the position paper speaks of requiring reporting program codes. Would the NRC look at limiting reporting to people in job categories that would warrant reporting? Part of the positions paper -- the position paper requests average doses for categories of licensees.

So, to take universities, medical centers, broad scope medicals, all claim that our average dose is minimal in all cases. It's easy when you have

hundreds of people doing DNA sequencing getting no doses, and then three new plant techs, a dozen new med techs, whatever, who are actually getting a dose. When we average, it all goes away.

So, if you break it down by what is the dose for a broad scope A license, you're going to get a very low number, but you're not going to get a useful low number. You're going to get a low number that represents a big denominator.

It will be -- well, two things. It will be quite a bit of work, and I'll come back to that in a second, to report a large number of people because most universities are badging many, many people. And when we are done reporting, if you don't know why this person is getting 2 or 3 millisieverts a year, and that other person is getting minimals, it is not clear the data will tell you much.

I would comment that it would be -- the data would seem to be more useful if it were by job type, and certainly from our perspective, we would not mind knowing what other institutions' doses are, average dose is, for people doing a particular function for comparison to our own.

The other comment I'll make is I'm wondering if the NRC has looked at or considered whether

the reporting could be done instead of paperwork from licensees, but via the dosimetry providers - there are not that many dosimetry providers - such that the licensee could designate which doses are reported and not have to do paperwork.

Obviously, that would save effort, I think probably on our part. But it also would let us more readily -- let me say it this way. In our institution, we spend a fair amount of time trying to determine which people we are badging because we need to badge them, and which people we're badging because they like having badges.

Many other universities do not break it down. If it were a matter of simply identifying to the dosimetry company which ones need to be reported, that might get your, or might not get you, a report that will include people that are doing work that might get them dosed.

I will suggest, even though I'm not popular with this, that it might allow people to not give you a lot of reports from people who are doing again DNA sequencing and they're not getting a dose.

I've commented on how this affects universities and medical centers. I'll also note that in the research and development category, there is a

broad spectrum of research and development and a wide distribution of what one would expect for doses, and I think you would find the same in some of your other categories as well.

So, I think coming back, my two questions are, I believe, A, have you considered a different breakdown? A breakdown that in some way takes into account job type. And B, is it -- have you looked at is it possible, would it be plausible, to do this in a way that didn't require filing of a report, and rather allow the dosimetry companies report out a group of people licensees have identified?

MS. MAUPIN: I'm going to take a stab, and if John wants to jump in, or Alan, if you have anything to contribute. The first thing I did is went and looked at NRC's -- you know, on our website, we have our guidance in terms of materializing things. So, I went and I brought some sample licensees.

Basically, on the license, it says, "Individuals permitted to work as an authorized user, authorized pharmacists and/or authorized medical physicists." Or, it named individuals there on the license.

MR. BROWN: You just name all the individuals who get no dose.

MS. MAUPIN: Okay, that would be fine. That's awesome, okay? So, those are the persons that are named on the license for me. Because I used to do licensing back in the day, where I would see -- but these would be what I would consider as your occupational workers. Are those your occupational -- for radiation protection, do you consider those persons to these persons who were named on the license as these are persons that are working your occupational workers.

Now, the other persons you're talking about that are badged; are you talking about the ancillary staff? Are those the persons you're talking about? Who are you talking about?

MR. BROWN: If we had to report those people who were named on our license, it would be relatively straightforward. You won't get useful information. Nobody on that list handles materials these days.

MS. MAUPIN: Right, okay.

MR. BROWN: The people who handle materials are in nuclear medicine. The nuclear medicine technicians.

MS. MAUPIN: Okay.

MR. BROWN: In research labs, they are generally people working under an authorized user. So,

I think -- again, I think that there would have to be some -- to give useful data as to dose trends, I think one would have to do some amount of work to identify who -- to identify people's actual exposure.

MS. MAUPIN: That's great, because --

MR. BROWN: And I think the people named on the license actually tend to be -- well, put it this way. There tends to be -- it makes sense, but they tend to be the supervisory people.

MS. MAUPIN: Okay.

MR. BROWN: Not the people who actually do the work.

MS. MAUPIN: Actually get the exposure, yes. Okay, so, see, that's why this is a good discussion. When you go back and you provide your input, which I know you're going to do, that you're going to lay this all out for us. And this is going to be so helpful when we're trying to come up with how we should look at this whole issue of who should report.

Because if you look at the way the regulation is currently written, it is written according to these licensed categories that we have established, like industrial radiographers.

So, when I looked at it, that's just how I looked at it: based on how we already have it set up.

So, there's a new way that we should start looking at this. That's why we're doing this. We're open to new ideas. That's why we're -- we appreciate it.

MR. BROWN: I still think it would be cumbersome.

MS. MAUPIN: Okay.

MR. BROWN: So, my comments are -- yes, we would prefer to not report, but if it does go this way and we do end up in a new category, has the NRC looked at some way to effectively make -- a way to make it not labor intensive? A way that would allow us to do it easily and efficiently?

MS. MAUPIN: I'm going to let Don jump in here.

DR. COOL: Let me again say thanks. You've raised a couple of very interesting questions that I think we need to look at. At the present time, we regulate licensees. And so, the requirement can be placed on licensees. We don't license individuals. And so, we don't have requirements in the regulations that are specific for different types of individuals or different categories of individuals.

I know that there are other databases that are out there, and not necessarily the NRC's, that have deliberately tried to capture an additional level of

detail, granularity, whatever you might want to call it by job function because that's very useful to help understand trends in particular areas and types.

It is not something the NRC has specifically required to date because in part, everybody has their own variations on what they call different people, and those sorts of things. And because we didn't want to start trying to add complexity to the requirement of, "Only if they get X amount of dose over the course of a monitoring period over a year do they report," or otherwise if they're monitored. The individual reports have to be provided.

So, you've raised an interesting question that we'll have to look at. I don't know whether there are some clever ways to help get that granularity without necessarily imposing a lot more burden by asking you and everyone else to start providing additional pieces of information, because right now, it is basically individual: their identifier and their dose for the year.

That allows us to cross connect if there are people who have been at different facilities that are part of the database. But it doesn't necessarily tell us if they were a nuke med tech for you, and they were a positron emission tomography target processor at

another facility at a different point in the year, or something else which we might consider as different categories.

So, I'm going to sort of hold up the mirror. I know you smiled when Cardelia said it, but I'm going to repeat it anyway. It would be greatly helpful to understand your view, not only on that issue, but how that might be written down in a way that wouldn't just add additional pieces of requirement information, which would make the reporting more burdensome, and would it actually make it useful or not?

I think the other question you asked, trying to see if my memory is good today or not, is with the dosimetry processors. We have had ongoing discussions with most of the major vendors, particularly in the context of trying to see if they can help us with existing data, which they may have, which wouldn't necessarily have been reported to us through our current reporting requirements.

At the present time, again, if I understand correctly from a legal standpoint, and we'd have to take this back to the lawyers, while they might be a licensee, I'm not at all sure that we would be in a position to require them to provide information which was under specific client constraints and otherwise.

There's some other issues that we have to look at, but that's another possibility of trying to look at some of the pieces. Today, most of the reports that are submitted to NRC are electronic files. In fact, with little or maybe none depending on the vendor and how the vendor provides it to a licensee, that which you would get from Landauer or whomever might be doing your proceeding, with a punch of a button can be sent to us and it can be loaded into the database.

So, that piece of it is relatively straightforward for a lot of the folks. Whether that would continue to play or not sort of depends on the kind of licensee and the kind of information that you're getting.

MR. BROWN: I think you find nobody is using Social Security numbers for the vast majority of the people. So, when one wants to track, if you go to track an individual, you need some sort of a unique identifier. We don't have that. Providing that for everybody that we provide a badge to is difficult.

Again, I think the -- I'm not necessarily in favor of the reporting. I don't really think that we have the issues raised in the issues paper apply to our byproduct material. But if it goes that way, I think I, and I suspect others, would be interested in

doing it in a way in which we granted the dosimetry company the authorization to transmit these 12 reports. But not all our reports.

If we submit our report electronically, and you want to know our overall average, that's fine. But if you are trying to track an individual, it might be useless.

MR. CHANG: If I can -- does -- you've said two things that are important. The current requirements apply to reports on each individual's occupational exposure, and in fact, we need to have a unique identifier. We don't require it to be the Social Security number, but in order for it to work, there's got to be some sort of unique identifier.

So, that is -- that's an interesting piece of information that should --

MR. BROWN: Like our internal number.

MR. CHANG: Right, right. So, that's an interesting point to raise because that would be an added complication that I'm not sure that I had thought of.

You also raised an interesting thing for us to consider, which we'll need to try and wrap into the record that I suggest you just sort of add when you put onto it, which is whether or not an acceptable solution

is for you to have provided a specific contractual arrangement with whomever is providing your processing. Therefore, you ask them at the end of the year to punch the button, and to send your set of data that corresponds to this to the NRC for you.

I'd have to look at some of the legal requirements. At least conceptually, I'm not sure that it would make a difference if it was your data and provided your institution, your license's compliance, whether you personally punched the button or your admin or medical physicist punched the button, or whether by contract, your dosimetry processor punched the button would make a whole lot of difference to us when the database was populated.

So, that's an interesting thought for us to think about.

MR. BROWN: An equal way of doing it is they might provide us with the report or its equivalent.

MR. CHANG: So, thank you. Some very good thoughts there. Anyone else?

MR. PEDERSON: This is Roger Pederson. I work at the NRC in the Office of the Nuclear Reactor Regulation. In your second question, I think I detected a sub-question, and this is why I want to ask. You were talking about having the contractor then report

a subset of all of the dosimetry results from the people that you had monitored.

That kind of implies that maybe there's a minimum reportable dose. Maybe some sort of a threshold as to what is reported and isn't reported. Is that -- did I detect that kind of a question? Maybe it wasn't that.

MR. BROWN: I'll see if this clarifies. We are not required to monitor people that are going to be at less than 10 percent of the dose.

MR. PEDERSON: Okay, that's a simplification of the regulation.

MR. BROWN: It is. I understand that. That is almost everyone. Were you to change that to 1 percent, it would still be almost everyone. We have many, many people who are getting no dose or virtually no dose, who for a variety of reasons, want to be monitored or are required by some other agency who thinks they need monitoring.

The example I brought up last time was radiation oncology. There is no procedure that is done in oncology that doesn't have several feet of concrete between you and the material. But we have badges for those people, and they are not going to be happy if we don't provide them.

The point I was trying to raise though is that we don't have those badges connected to a unique identifier that is available to anyone outside our institution.

So, we have our identifiers within our institution and are unique. But if I provide you a whole set of our dose fractions, you won't be able to tell anything about --

MR. PEDERSON: The point I was trying to clarify was --

MR. BROWN: If the requirement comes down and you have to report doses, but it is of people in job categories, a dozen or two dozen people, then at least it becomes -- well, we have to do what we have to do. But then it becomes much more perhaps manageable to begin to -- for this small subset to get the necessary additional information, etcetera.

MR. PEDERSON: The question had a subset of people being reported by the contractor. I was just wondering what that subset was. You explained you were talking about people who were required to be monitored.

If they're required to be monitored by a current regulations, then they're required to report that dose.

MR. CHANG: So, anyone else here at

headquarters with any questions or comments? Hearing none, I'd like to move on towards the folks on the phone. For the folks on the phone, please press *1, and then we'll have the operator unmute you.

OPERATOR: We do have a question by phone. It comes from Ralph Lieto with Saint Joseph Mercy Health Systems. Your line is open.

MR. LIETO: Thank you. I have a question regarding the reporting by the agreement states of 20.2206. What level of comparability is that requirement at the current time?]

MS. MAUPIN: It is what we call a comparability gig, which means it is not required. They are not required to adopt those provisions.

MR. LIETO: My question is regarding your -- your question number 3, about Agreement States, and if this was raised to -- let's say if it was made a comparability B, which would mean they would have to do this. Really, it would be very little work, wouldn't it, for the Agreement States? Because the licensees would be the ones that would be reporting this and the -- so that the requirement, if you will, or the oversight by the Agreement States would be simply verifying that their licensees have reported.

So, is that a correct assessment if 20 -

what was that - 20.2206 was made category B?

MS. MAUPIN: Well, I'm not going to take the liberty of answering for the Agreement States because they would not like that. They are very sovereign, and they really remind us that they're sovereign bodies, governmental bodies.

They will also probably say you don't understand all the effort we have to go through to develop a regulation and all the layers that it takes in terms of getting it through our legislature, and getting the attention of the governor, and how much time we have to take from inspection or writing licenses to put into adopting -- just writing up the regulations.

So, I'm not going to take liberty with -- with that, because I work with the states for a very long time. What I would say is that some of the states might, for their own management of their own Agreement States program, might want to see what -- how their own licensees are managing the dose to their workers. That would translate into their licensees' radiation protection program; how well they are maintaining the effectiveness of their programs.

Now, I have a friend in Arizona, in the Arizona program, Mr. Aubrey Godwin, and he reminded me that they already put that in their regulations, even

though it's not a matter of comparability. Some Agreement States are requiring their licensees to submit this information to the NRC.

MR. CHANG: Cardelia, if I can add to that? You've raised an interesting procedural point, which I think could be open to some discussion in which I think there may be considerable discussion between the NRC and the states as we would look at what to do because there are in fact of course at least two major options.

One is that the state puts in a requirement; the state's licensees report to the states and the states provide it via some mechanism to NRC, or that the states simply have it and there's no centralized database. Those could be two steps in the process.

The alternative that I think the way you expressed your statement was that the state would simply require that each of their licensees report directly to the central database, and sort of implicit that the state could then go mine that database for any and all of the data, which would simplify their process.

That's an interesting sort of thing that still needs to have some discussion, and in fact may have some legal thoughts around it depending on how states are -- how state law is with regard to collecting information and otherwise.

So, that is something that we're going to have to think about. I'll hold up the little mirror once again, which is to say when you submit some comments into the docket, I would very much invite you to not only make your thought there, but your thoughts on the pros and cons of going directly to a database versus the states and otherwise, as a way of simplifying, reducing burden and otherwise.

MR. LIETO: A follow-up question, please?

MR. CHANG: Please.

MR. LIETO: The reporting into REIRS does not have individual information if I recollect right. Being a medical licensee, I know we had to do this for NRC many years ago, and I think it was a one or two time requirement.

MS. MAUPIN: Yes.

MR. LIETO: From my radiation, it was just basically dose values and ranges, and numbers that were in that range. So, there was not necessarily anything that could be tied back to individual -- individuals that were being monitored. It was just basically a summary of the doses by that licensee. Is that correct?

MR. CHANG: Historically, that was correct. It is no longer correct. The requirements now are for licensees to provide the occupational

exposure for each of their monitored individuals.

MR. LIETO: Thank you for the clarification.

MR. CHANG: Thank you. Next question?

OPERATOR: The next question is from Ruth Thomas of Environmentalists Inc. Your line is open.

MS. THOMAS: Thank you. I am familiar with some of this. A number of us, a group of us, have been studying exposure to nuclear materials, whatever the source. I haven't heard much said about the cumulative affect since we started having testing and nuclear power; that people are exposed to -- are exposed to so much more. I remember that 32 study.

So, we have in our bodies already these man-made nuclear materials that we didn't have before. And it's hard for me to see how that is being checked, and also you've been talking about exposures of workers. You didn't say too much about exposure of patients.

Also, there doesn't seem to be any discussion of the fact that making these radioactive materials for medicine requires uranium mining and other processes which are in turn exposing people, and building up the burden of radioactive materials being in the world, or being -- you know, certainly close to where these activities are going on.

So, it's kind of -- from our observations, it's sort of not being given the complete -- I mean it's sort of accepted that if the doctor or somebody else says these kind of treatments with radioactive material -- that that -- there isn't a discussion there of, "Yes, but what are the negative impacts?"

What other treatments could be done that didn't involve radioactive material, and in that way, would limit or reduce the exposure that medical workers get from using these?

MR. CHANG: Ruth, Dr. Don Cool will try and answer some of your questions. I did want to note, though, that written comments are more than -- we're more than happy to accept written comments as well.

MS. THOMAS: I was going to mention that.

MR. CHANG: Sure.

MS. THOMAS: You need to have statements backed up with -- independent. What I mean by independent -- I think that word needs to be reclassified, because what I mean and what the workers I'm working with mean by independent is it would not be anybody that has a vested interest in nuclear, or is employed by the nuclear industry or employed by the government.

MR. CHANG: Sure. I'll pass this over to

Dr. Don Cool. I just wanted to reiterate we more than welcome your written comment as well. Don?

DR. COOL: Ruth, thank you.

MS. THOMAS: How would I submit this by email?

MR. CHANG: There is an email address. It is rulemaking.comments@nrc.gov. So, once again rulemaking.comments@nrc.gov.

MS. THOMAS: Rulemaking, this is the rulemaking?

MR. CHANG: Yes, ma'am.

MS. THOMAS: We you planning on changing exposure levels?

MR. CHANG: I'll hand it off to Dr. Don Cool over here to try and answer some of your questions.

DR. COOL: Ruth, thank you for some observations. You've touched on a variety of things, and I'll try to provide at least some context, although some of them are outside of the scope of what we're looking at at this particular point.

You are correct. At the moment, what we are looking at is reporting of occupational exposure, where we require certain types of licensees to provide specific information on each individual.

The approach used for public exposure, or

individuals who may be outside the facility, is a different type of arrangement where licensees are required to provide reports and records of their effluence and their releases, and other materials, but for which there isn't a monitoring on an individual by individual by individual basis. So, it's a different kind of approach.

You also mentioned patient exposures. At the present time, the NRC, in looking at the medical activities, focuses its attention on the licensees and medical users of radiation protection programs, their protection of the workers, the protection of individuals who are members of the public who may be in the facility or in the vicinity of the facility, but does not directly regulate the actual exposure of the patient.

You made a very interesting statement, which I think I would agree with as a citizen. I would hope that a physician, in talking with their patient and in talking about what things might be necessary for their diagnosis and treatment would talk about, the kinds of tests that are necessary, the kinds of options that are available, and that the patient would be telling the doctor, "Well, I had that sort of test six months ago," or something like this, so that they could

develop their own individual plan.

The patient's relationship with the physician is not something that we try to get into the middle of, and say, "Thou shalt do this or that." That's very much something which is part of the Physicians Code of Ethics, maybe requirements or otherwise of medical boards of practice but are not specific.

In fact, their use of some radioactive material or X-rays or otherwise is only one very small segment of all the things that they might do in diagnosis and treatment.

The third thing I think I heard you talk about was overall cumulative environmental affects from a wide variety of uses in the nuclear industry and otherwise. I would note again that those are handled by some of the other requirements that our particular effort is not looking at at the moment.

Note that in fact the Environmental Protection Agency, EPA, just completed a six-month or so comment period where they were looking at whether changes should be made to some of the requirements that are associated with all of the effluence from the nuclear fuel cycle. So, you've identified an interesting issue, and in fact our sister agency is

looking at that particular issue.

Just to sort of wrap this up and go back to Richard, we would certainly invite you to send us an email with your thoughts and information. We'll get that into the docket so that we can factor those pieces in. Thank you very much.

MR. CHANG: Thank you very much, Ruth. Could we move onto the next person in queue for the Q's and A's on the phone, please?

OPERATOR: The next question is from Marvin Lewis, a member of the public. Your line is open.

MR. LEWIS: Hi. This is a real simple one. I got the 10 CFR 20.22 wrong. Can you tell me how to look up what this rulemaking is about? What number or whatever?

DR. COOL: Yes, sir. I hope I can clarify that. We are looking at changes to 10 CFR Part 20, two-zero, and the particular section that we were talking about is 10 CFR Part 20, section 2206, which are the requirements for reporting of occupational exposure.

So, I suspect you may have, in doing a Google search or something, not gotten quite all of the numbers in there. I hope that helps you.

MR. LEWIS: Yes. I got it wrong. I got .22, which meant it didn't come up at all.

DR. COOL: Yes.

MR. LEWIS: It's 20.226, reports of individual monitoring, that you have in this rulemaking I presume.

DR. COOL: Yes, sir, that is correct.

MR. LEWIS: Okay, it's up there now. Second question, if I'm allowed.

DR. COOL: Certainly.

MR. LEWIS: Okay, there's a lot of radiation coming out of nuclear fuel cycle, and it goes into background. This is a very small part of background. It is here. My problem is that I don't see it that way.

When I start adding up the numbers, and it's just addition really, it seems that we're putting an awful, awful, awful lot of radiation out into the background. It should be followed. What's worse is that when I was a child, about 67 years ago, the papers were reporting the background of 100 millirem per year.

Now, the background is being reported at the NRC about several hundred millirems per year. And the EPA is looking at a protective action guideline of

700 milligrams per year for background. Also, when you start looking at the history of the earth, you start looking at something called the pre-Cambrian explosion of light, in which the background jumped from three or four, all the way up to 40.

So, a lot of people, a lot of researchers and what have you, are saying it's because the radiation background went below a certain level, supposedly 600 or 700 millirems per year.

Now, in addition to my problem, I'm seeing that we are avoiding some of the very, very large amounts of radiation that we're putting in the background, and it may be -- and a consequence may well be a reversal of what happened in the pre-Cambrian explosion of light, where we lose our ability to evolve if we haven't already.

Thank you. Consider it a comment it you won't consider it a question, please.

MR. CHANG: Thank you for the comment, and we welcome written comments to the email: rulemaking.comments@nrc.gov. Sheila, are there anymore questions in the queue?

OPERATOR: No more questions in the queue at this time.

MR. CHANG: Okay, great. Well, moving on,

I'll now introduce our next speaker, Dr. Donald Cool. Don is a senior advisor in NMSS, and Don will discuss metrication units of radiation exposure and dose. Don?

DR. COOL: Okay, thank you, ladies and gentlemen. I know you've already heard my voice. I'll let the folks who are working the webinar get the other power point up and displayed for you, so you'll be able to see the slides that I'm actually talking about. So, she'll hit the little button that says, "Share the page." And hopefully, that will work.

All right, so, let's go directly to the next slide. We've already talked about the fact that this actually the fifth issue. This is an issue which has actually in its roots national policy decisions that go back 30 years or more, which goes to some decisions made nationally that at some point the United States should move towards using the metric units.

Now, I suspect most of you, when you drove to your office, or the last time you were out in your car otherwise, were very carefully monitoring the speed of your vehicle in kilometers per whatever. You know?

So, certainly some of the original expectations about the United States moving completely to the metric system did not exactly come to fruition as perhaps they were originally envisioned.

Nevertheless, some of that issue remains out there.

The NRC adopted a metrication policy statement in the early 1990s. 10 CFR Part 20 are regulations for standards in radiation, was published before that policy was put in place, and it is formatted in an order in which the traditional units of exposure - rads, rems, curies - were the primary units. The SI, System International, units are in parenthesis.

The appendix B values for annual limits of intake derive their concentrations in occupational exposure in values that can be used for demonstrating compliance for airborne effluence and liquid effluence are in traditional units only.

The NRC's metrication policy, when it came out a few years after that time in the mid-90's, said that moving forward, the NRC would format its regulations in significant documents using the SI units first, followed by the traditional units in parenthesis. We can go to the next slide.

So, moving back to what our current regulations requires, keep in mind that it is formatted so that when it gives dose limits, it gives it in traditional units first and the SI units in parenthesis.

There are some specific requirements, particularly with regards to record keeping, which

require today licensees to use the traditional units for their records. It permits licensees to also have the SI units in parenthesis in their records.

So, it requires that traditional units be used. It permits the SI units to be incorporated in the records. Then interestingly enough, the next section, 20.2101(c) requires that for shipping purposes, transportation manifests have to be in the SI units or can contain both units.

That in part in order to facilitate and make sure that there's consistency in trade, in international trade and otherwise. So, in fact, when you look at the NRC's requirements today, there is a bit of schizophrenia and difference depending on exactly what you're looking at in the current form. We can go ahead to the next slide.

So, when we went to the Commission, the Commission directed the staff to not eliminate the traditional units. In fact, the staff had gotten some comments in its development over the last few years of trying to get initial positions, such as from the Health Physics Society and otherwise, that we should take the step of simply eliminating the traditional units, and simply use the SI units in our regulations.

The Commission said, "Not so fast. Do not

get rid of them. Both the traditional units and the SI units should be maintained."

Thus, the staff's proposal for trying to further develop a possible regulatory basis is that we would do exactly as the current metrication policy of the Commission directs, which is that we would in moving forward with any revisions format the regulations with the SI units first, and the traditional units in parenthesis for the various limits that are contained in the regulations. Go to the next slide.

However, it is perhaps not quite that simple for two reasons. The first is the question of, "So, what do we do with all of those numeric values in the appendix that are used for purposes of demonstrating compliance, and which in fact other regulations used as a citation as a trigger value for when certain reports or other information might need to be provided to the NRC?"

Because currently, those numerical values are all in traditional units. So, we're soliciting some views and information on the implications of changing that table to either be in the SI units, or some combination of the above.

In this particular case, it's not quite as simple as simply saying, "The dose limit is thus and so."

Because changes in dose are integer numbers. They're not the same number, but they differ by a factor of 10 or a factor of 100. So, the number is still the same.

In the case of looking at activity, as in the amount of radioactive material that you have or the concentration of radioactive material, you get a different number if you look at it and you measure in terms of curies or mircocuries or whatever the appropriate unit, versus if you look at it in the SI value, which is becquerels.

In fact, you have to run out to four, five, six decimal places before you get them to be pretty close to each other. So, it's not simply a matter of listing one unit and another set of units.

I've noted on this slide here that the NRC has already had to face this issue in a different regulation, which were requirements that were put in place about a year ago dealing with security of some radioactive materials.

In that instance, the NRC chose to have the SI unit be the regulatory standard. In other words, the requirements were in becquerels, and that we provided the values in the traditional units, the curies, to several significant figures for the convenience and use of licensees.

Now, that obviously has some implications for how we would format the table, the kind of information that would be in there. So, if we can go to the next slide, we'll start to work through several of these questions.

The first one goes back to the original use of the policy statement, which is, "If for purposes of applying the policy statement to dose limits and other references in the regulation itself, are there significant implications of changing the order from traditional with the SI in parenthesis to the SI with traditional being in parenthesis?"

Are there any particular issues or burdens that might be caused to certain classes of licensees or otherwise? If we can, go to the next slide.

The second question gets to what we should do with the record keeping, and from there to the requirements for reporting. Because logically speaking from a simple plain-language standpoint, if you write the regulations so that the regulation specifies dose limits in SI units, the metric units, it probably doesn't necessarily make sense to then continue a requirement that says that licensees have to keep their records in traditional units.

What are the implications of allowing

licensees to use either set of units, or both sets of units? In similar situations, we have usually required that you keep your records in one set and you have to be consistent about it. You can't use some one place and some another place.

So, there are implications associated with that. Then following that, are there implications -- well, if you keep your records in the metric units now, should you be allowed to report them in the metric unit since you provide reports in the units in which you keep the records?

Each of those stages has some additional complications that we would like viewpoints from licensees on. This not only is a simple matter of providing the records and keeping the records, but being able to explain the information, being able to communicate the information, making sure that people know exactly what set of units you're talking about at any given time. Because there are potentially some compilations if you say there was one of something.

Well, one rad of radiation is a whole lot different from one sievert of radiation and the implications are certainly quite different. So, we're interested in some views on that.

The third question has to do with views

associated with how the NRC might format and present the information in our appendices; whether it should be maintained under the traditional units - again that doesn't follow what the policy statement would provide for at the moment - should it be provided in the metric units only, which would again be at least some exception to the policy statement?

Do you put in both sets of units so every single number that you have on the table becomes two sets of numbers? They can get a more complicated table.

Do you put just one set of units into the regulation and have the other set in a guidance document or NUREG document for the convenience of licensees and users. Some of those other sorts of things we're inviting views and information on that.

If we can go to the last slide then, that wraps up this particular set of questions. It's a rather interesting set. We would invite comments and questions on that, and other things we can clarify at this time.

MR. CHANG: Thanks, Don. Are there any comments or questions at this time? At this point, I'd like to open it up for members of the public to speak. First, is there anyone here at headquarters who would like to speak?

MS. ANDERSON: This is Ellen Anderson from the Nuclear Energy Institute. We recognize the policy statement by the Health Physics Society to use SI units, and we see this issue from a power plant perspective. One of the things I think we need to think about is, at least within the power reactors, we have something called emergency plans.

Those emergency plans branch off and involve Environmental Protection Agency regulations, Federal Emergency Management Agency recommendations. It also involves the use of local officials as well as state officials.

If we are going to start using SI units within our power reactors, then in order to be able to be speaking the same language, something I don't know whether the Commission has considered or not, but we also have to think about the other communities of people that we communicate radiation units to, such as again the EPA, FEMA, the local officials, and how all this will affect the emergency plans as well.

I mean we're talking astronomical costs down the road because again, it is not just power reactor procedures and training. We're now looking at agencies and hundreds, thousands, of people that would be affected by this as well. That's all I have. Just a

comment.

MR. CHANG: Thank you, thank you. Hopefully, you'll be --

DR. COOL: Thanks, Ellen. I'm sure you'll write that in as part of the comments the industry will submit. I will tell you that we are well aware of those communication issues; that this one is much bigger than just the NRC.

We have ongoing discussions with EPA, the Department of Energy, states and otherwise; the question is communication in being sure that if we have to respond to an event that we don't manage to confuse ourselves is one of the things that is very important to us.

MS. ANDERSON: And recognize that it is not just the communication, but it is the training and the understanding of what those units mean. Again, I'm not talking just my radiation protection technicians or staff, or even plant staff. I'm talking about the community folks that volunteer to be part of the emergency response teams. You know, drills, exercised. Heaven forbid they're the real thing.

And so, again, we're concerned about that. Something beyond even our own issues within the plant.

MR. CHANG: Thank you for the comment.

Anyone else here at headquarters with comments, questions? Okay, great. Not hearing any, now we'll go to the phones. Is there anyone on the phone who would like to speak? If so, please press *1, and we'll have the operator unmute you.

One thing I would like to note though is if we could try to keep the comments within the scope of the advanced notice of proposed rulemaking, that would be appreciated. Sheila, anyone on the phone?

OPERATOR: Actually, no questions by phone at this time.

MR. CHANG: Okay, great. Not hearing any questions on the phone, I would like to open up the questions or comments here at headquarters first, and then on the phones, in regards to encompass topics from the previous meetings within the scope of the advanced notice of proposed rulemaking. Anyone here at headquarters?

Hearing none, I'd like to open it up for the folks on the phone regarding previous topics discoursed within the advanced notice of proposed rulemaking. Please press *1 to let the operator know that you're interested in asking a question.

OPERATOR: We do have a question from James Carswell at Southern Nuclear. Your line is open.

MR. CHANG: Thank you.

MR. CARSWELL: This is James Carswell. I just want to add onto what Ellen had mentioned about the additional costs and all to switch over to the SI units. One of them is have we looked at the costs involved with instrumentation, as well as training issues, procedure issues, as well as licensee documents and that type of thing?

Just switching over instrumentation to go into instruments that are SI, plus the opportunities for error if you're still using instruments that read out in millirems while you're trying to convert over to the SI units and the opportunities for errors, there's possibly for overexposure with it.

I'm looking the costs. I know that from the industry standpoint, you're looking at several hundreds of thousands of dollars per plant just to get instruments over to that system, which could be done, but there's just a lot of cost involved. So, it should be looked at or under consideration for this.

DR. COOL: Thank you very much for the observation. We agree with you, and having said that, this is your opportunity when you send in materials to actually give us specifics that will help us try to make those estimates of cost.

I would much prefer for all of you to give me the numbers that you think it would take for your facilities and information, your instruments and otherwise, rather than us having to try and make a guess in terms of writing down what we think the various implications might be in writing a regulatory analysis.

So, we very much agree with you. We know that is a set of issues, and I would invite you to give us as much data and information as you can that would help us to be reasonable accurate in trying to make an assessment of what the implications of various approaches might be.

OPERATOR: We do have one more question. It comes from Ralph Lieto, of Saint Joseph Mercy Health System.

MR. CHANG: Thank you. Ralph?

OPERATOR: Mr. Lieto, we are not able to her you. Perhaps you're on mute.

MR. LIETO: Yes, I was. I'm sorry. Follow-up question to the implementation. Was there anything stated in the presentation or in the advanced notice that indicated time for implementation of any such conversion or implementation?

DR. COOL: That's a wonderful question, and I'm sure the ANPR only would've contained a very

general sort of statement of the thing. Let me ask Cardelia to answer, and then I'll talk a little bit more.

MS. MAUPIN: The answer to that question is no. In terms of what we have is some questions in terms of cumulative effects of regulations. So, we're asking our stakeholders relative to any of these potential, and I want to put that in parenthesis, potential revisions. We haven't decided yet what kind of time frame we should look at if we move forward on some of these issues.

I want to assure you that on a number of these issues we have not decided whether or not we're going to move forward or not, and that's why we're reaching out to our stakeholders. That's why we're getting educated, and you're educating us today.

So, you will educate us as well by sending in your comments. So, the answer is no, and look at those cumulative effects and regulation comments in our notice, and help us in addressing those questions.

DR. COOL: Thank you, Cardelia. Let me use your question as a platform to just very briefly outline sort of the next steps.

Obviously, the NRC staff right now is still accepting comments, and will be for another month or so on our advanced notice of proposed rulemaking. We'll be taking a look at all of that information, and we'll

be starting to develop a draft regulatory basis.

The staff would start to look at it, and start making some initial decisions of where we think all of the information should take us. At some point, and I am not going to pick a date, because if I pick the date the only thing I could be sure of is that I'd be wrong, but at some point, the staff would in fact provide a preliminary draft regulatory basis for public comment, which would be another opportunity for everyone to take a look at what the staff has put together, what we believe we have in terms of information, allow stakeholders to provide additional information.

With that information, the staff would then take the draft regulatory basis to our Commission for the Commission as a voting matter for approval before actually beginning the preparation of a proposed rule.

Presuming for a moment that there are some set of issues that the staff chooses to move forward in a draft regulatory basis that the Commission agrees that that regulatory basis is supported and tells the staff to move forward with the proposed rulemaking, the proposed rulemaking then of course would be again another opportunity for comment, where there would at that point be specific regulatory proposals, changes to

the regulatory text for comment.

The staff would have to take all of that comment and prepare what it believes would be the final rule, which would again require Commission's approval.

So, as you can imagine that's not going to be a process that's all going to be done in the next year, or even two or otherwise. There will be a fair bit of time, and there are a number of steps, and there are at least several additional opportunities as things become more refined for information and input.

What I think is more important at this moment to reinforce is this is the opportunity for everyone to tell us all the bits and pieces and information and background that you think would help us decide what the right thing to do might be, and why.

It doesn't help just to say, "We think you should do this," or, "We think you should do that." What helps a lot more is, "We think you should do this for the following reasons, and here's the following data, and here are the costs associated with this, and the implications." Because all of that needs to be part of our development of regulatory basis that allows us to look at not just the proposal, but a regulatory analysis and implications that we have to prepare in order to make a decision.

MR. CHANG: Any more questions, Sheila, from folks on the phone?

OPERATOR: No further questions at this time.

MR. CHANG: Okay, well, if there are no more questions or comments, we'll start a wrap up.

MS. ANDERSON: Can I just make a comment?

MR. CHANG: Please.

MS. ANDERSON: This is Ellen Anderson from the Nuclear Energy Institute. I just want to say that I appreciate all the hard work you've done in this area, and the public meetings that we've had throughout the weeks.

I think it has been -- some of us have been here everyday, and we really appreciate this opportunity. I just want you to take into consideration something as you're looking going forward with this, and it has to do with the whole issue of cumulative impact of regulation.

For those of you especially on the phone who may not be aware of all this, from a nuclear energy industry perspective, we have basically two -- actually three issues going on right now.

The EPA's 40 CFR 190, which is the Radiation Protection Program, has six major issues that could

possibly be changed in the regulations, which will cause quite a bit of resources, okay? Human and monetary resources for the nuclear energy industry, as well as the six issues in Part 20, okay?

Any one of then in themselves are going to be a drain of resources on people who are protecting worker safety and public safety. Then on top of that, there is an imminent publication of changes to Part 50, appendix I, which will affect the power reactors.

There's probably five or six issues there. So, we're talking somewhere around maybe 18 issues on the table right now to change. When you add all that up, you're looking at resources that will take -- again, we're concerned will take away from worker safety as well as safety from members of the public.

None of these areas are areas that people in their own minds will do on purpose, but there are -- there's opportunity for errors with this much change.

So, one of the things we want you to do is consider all this change, and again, looking at the timing of it. If we do them all at once, I think we're talking about a perfect storm here, and I really don't -- obviously no one wants that to happen.

So, I just want -- for the record, I want you to understand the whole issue of cumulative impact

to your Radiation Protection Programs. This is a big deal, and we take if very seriously. Thank you.

MR. CHANG: Thank you. Okay, well, if there are no more questions or comments, we'll start our wrap up. Before I turn it over to Don for closeout, I'd like to remind everyone to fill out the feedback form and leave it with us.

If you prefer, you can fill it out and mail it to us at your convenience. We really want to hear from you.

As we mentioned before, we want everyone to know that even though your feedback will be included in the transcript, only written comments will be addressed in the regulatory basis. So, please be sure to submit your comments in writing.

We also want you to know that the webcast at the kickoff meeting on September 24th is available to public viewing on the website, as are slides and the transcript. In fact, all of the presentation materials from all of these meetings will be made available at the site.

I also wanted to thank our transcriber, John, and our operator, Sheila, for providing excellent support for today's meeting. And with that, I'll turn it over to Don for closeout.

DR. COOL: Thank you, Richard. Let me thank each of you. I know that some of you, Ellen is sitting here in the room and a number of you on the phone bridge, have been with us every single week working through this.

We appreciate all of the time and effort that you're putting into it. We are very much lo9oking forward to all of your input. I want to use this as yet another opportunity to remind you that we really do want you to submit comments on the record. You've heard a little statement each time that the comments are what we'll be specifically addressing in the regulatory basis.

Yes, we're transcribing a meeting. Obviously, we're listening to all this. We're factoring all of that into our thinking, but it doesn't necessarily mean that when we write something up, you're going to see transcript at page thus and so, with all of those individual pieces documented out.

The way to ensure that we're taking a look at it, and to help refine the comments and views, and provide us the additional information that really helps us understand the basis is to actually send it in, whether it's by an email; whether it's actually uploading the file to regulations.gov, faxing it in,

mailing it in.

We'll take comments most any way you wish to send them to us, and we'll try to take a look at all of that information. We'll be continuing to receive comments until November 24th.

While that seems like a long way away, it's not actually all that far away, and I'd really encourage you once again to send us the information. Not just the short answers to the question, but all of the whys and background and additional information; all the things that you would to see reflected in information that can help us develop positions in this particular area.

We very much appreciate all of your time and effort, and we thank you and look forward to hearing from you. Thank you very much.

OPERATOR: That concludes today's conference. Thank you for participating. You may disconnect at this time.

(Whereupon, the above-entitled matter went off the record at 2:40 p.m.)

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