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NUCLEAR REGULATORY COMMISSION

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ADVANCE NOTICE OF PROPOSED RULEMAKING (ANPR)-

POTENTIAL CHANGES TO NRC'S RADIATION PROTECTION

REGULATIONS

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THIRD PUBLIC MEETING

+ + + + +

THURSDAY

OCTOBER 9, 2014

+ + + + +

The Meeting convened in NRC One White Flint North, O16B-04, 11555 Rockville Pike, Rockville, Maryland, at 1:00 p.m., William F.

Burton, Facilitator, presiding.

PRESENT

WILLIAM F. BURTON, Facilitator

ELLEN ANDERSON

KEITH BROWN

ANDREW CARRERA

DONALD A. COOL

VANESSA COX

JIM DANNA

VINCE HOLAHAN

MANUEL JIMENEZ

CARDELIA MAUPIN

ANDREW PESSIN

SOLOMON SAHLE

MICHEAL SMITH

T-A-B-L-E O-F C-O-N-T-E-N-T-S

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

1:03 p.m.

MR. BURTON: Good afternoon, everyone. My name is Butch Burton from the NRC's Office of Nuclear Reactor Regulation and I'd like to welcome everybody to today's meeting.

I'll be serving as your facilitator today. My role as facilitator is to help ensure that today's session is informative and productive. Today's session is the third 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 entitled, "Standards for Protection Against Radiation." The goal of this effort is to achieve greater alignment between 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 and general discussion of the main issues and a discussion of plans for upcoming meetings.

Last Thursday we focused on how Part 20 needs to be updated to align with the methodologies and terminology in ICRP 103, as well as the occupational dose limits for the lens of the eye.

Today our focus is on dose limits for embryos and fetuses of a declared pregnant occupational worker and on individual protection and ALARA planning. Specific questions on these topics were included in the Advance Notice of Proposed Rulemaking, known as ANPR, that was published in the *Federal Register* on July 25th, 2014. You can access the ANPR through our Agencywide Document Access Management System, otherwise known as ADAMS. The accession number is ML14183B015. And I'll repeat that. It's ML14183B015.

This is a Category III public meeting, which means that members of the public can participate at designated points throughout the meeting. Hopefully, everyone is signed in and received copies of the handouts. These include the meeting agenda, the presentation slides, the *Federal*

Register notice that contains the ANPR, the staff's issue papers on today's topics and a feedback form. For those folks here, if you haven't got copies of those, they are just outside the main doors and you can pick those up. For folks on the phone, this material can be accessed at the NRC Website.

Before I introduce our speakers, I want to take a few minutes to go over some logistics. First, this meeting is being transcribed, so we want to make sure that our transcriber Toby can get a clear copy of the meeting. Therefore, we ask that you please turn off or mute anything that rings, buzzes, beeps, talks back to you, anything like that. We also would like you to minimize side conversations.

Also, we want everyone to know that even though your feedback will be included in the transcript, only written comments will be considered for reg basis consideration. 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, for folks who don't know, you'll need to go through this door, go straight to the back. And if you turn to the left,

you'll hit the men's room. If you turn to the right, you'll hit the ladies' room.

If we're asked to evacuate the building, please follow staff directions. We'll keep everyone together and we'll muster outside to 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 forms are a valuable instrument for us to provide input so we can help to improve our meetings.

There will be opportunities to ask questions for each topic as identified on the agenda. For folks on the phone, please be aware that you'll be muted until we're ready to take your questions and comments. We have our operator Jamesa helping us with this, so when you want to speak, please press star one. This will let us know that you wish to speak. I'll then ask the operator to un-mute you and you'll be able to speak. And for all speakers, whether here or on the phone, please identify yourself and your organization before you provide your question or comment. We're going to try very hard to stay on time, so we have to be

flexible about how much time we can give to your questions and comments.

Are there any questions from anyone on anything that I just shared?

(No audible response)

MR. BURTON: Okay. Sounds good.

All right. For folks on the phone who have dialed in, we're having some technical challenges here, so we're hoping that you can see the slides. If you've having any trouble, please hit star one and just let us know. We're hoping that you can see those.

All right. Let's get started. First, let me introduce our first speaker, Mr. Solomon Sahle, a health physicist in our Office of Nuclear Material Safety and Safeguards, otherwise known as NMSS. Solomon will discuss dose limits for the embryo or fetus in a declared pregnant occupational worker.

Solomon?

MR. SAHLE: Good morning. Today we're going to discuss Issue No. 3, which is dose limit to embryo/fetus of a declared pregnant occupational worker, or DPOW.

Second slide. On the second slide we do have some background information on this issue. Currently 10 CFR 20.1208, Section (a) sets the dose equivalent at five millisievert for the entire pregnancy. Section (d) of this part states the dose equivalent to embryo/fetus is within 0.5 millisievert of the limit during the time of declaration. Additional exposure to the fetus cannot exceed the 0.5 millisieverts for the remainder of the pregnancy. Declaration is the DPOW's choice. It's the worker's choice, so we don't have any control on that.

Second slide. This requirement, the requirement 10 CFR 20.1208 our built on the ICRP Publication 26, which was published in 1977. In 2007, ICRP Publication 103 requirement the dose limit to embryo/fetus to provide the same level of protection as a member of the general public, which is one millisievert, or 100 millirem. The 2007 ICRP Publication 103 requirements applying the dose criteria after declaration of the pregnancy by the occupational worker.

Next slide. The Commission directed staff to continue discussing discussion with

stakeholders regarding possible revision to this dose limit, five millisievert for embryo/fetus and explore any appropriate and scientifically justifiable dose limit for the embryo/fetus. The Commission also directed the staff to continue discussion with stakeholders on the option of applying the limit either on the entire gestation period or only to the portion of the time following the declaration of the pregnancy. Proposal. The staff proposes the dose limit to be one millisievert, 0.1 rem.

Next slide. So there a certain set of questions the staff is asking from stakeholders and the licensee. The first question was are there any significant anticipated impacts associated with reducing the dose limit to the embryo/fetus of a declared pregnant woman including if there is any operational impacts. So the first question.

The second question is are there any benefits or impacts associated with applying the reduction of the limit over the entire gestation period or only to the period after declaration?

The third question is are there any anticipated implementation impacts? Were the

implementation impacts on record keeping if the dose limit to the embryo/fetus was lowered to the proposed one millisievert?

The fourth question, are there any technological implementation issues such as to limit to detection which would make adoption of this ICRP Publication 103 difficult in certain circumstances? So we're asking if there is any technological limitations to detect the limit recommended by ICRP Publication 103?

The last question is are there any data on actual dose distribution to the embryo/fetus of a declared pregnant worker? What are the trend for this data?

So this is what we have on this issue, so if you have any comments? The last slide will give you the comment will be -- we accepting comment until November 24, 2014, so the information, where to submit those comments until November 24, 2014. And we also have our next public meetings and Webinars in October 16 and October -- no? Okay.

MR. BURTON: Done?

MR. SAHLE: I'm done. So if you have any question and comments?

MR. BURTON: Yes, now we'll open it up to any questions or comments from folks. Let me start here in headquarters. Anyone have any comments or questions on Mr. Sahle's presentation?

(No audible response)

MR. BURTON: I'm getting nothing here. So we can open up the phones. Again, for folks on the phone who'd like to make a comment or a question, please hit star one and that will alert the operator that you'd like to speak, and then she can un-mute your phone and then you can provide your question or comment.

So, operator, is there anyone who'd like to speak that you can see?

OPERATOR: Yes, we have two lines in the queue from the phone. The first comes from Linda Sewell's line.

You have an open line. You may begin.

MS. SEWELL: Yes, good afternoon, everybody. This is Linda Sewell from Pacific Gas and Electric, Diablo Canyon.

One concern I have, and it's certainly weighs in Q3-1, and that is associated with the requirement now that the embryo/fetus dose be

equally distributed across the period of the pregnancy. If we're looking at a 100 millirem limit, we're looking at when we get down to administrative controls, etcetera, etcetera at 7, 8, 9, 10 millirem per month limits, which effectively makes it very, very difficult to allow declared pregnant workers to even enter a radiologically-controlled area. So a comment and a question both, I guess, has that been considered?

DR. COOL: Thank you for the question, Linda. This is Donald Cool. We have thought about that. We recognize that there are some interesting challenges when you're starting to operate in the vicinity of what you can monitor on a month-by-month basis with some of the dosimetry systems as well as the fact that it's a very small amount if you divide it equally amongst nine months.

So, yes, that has been talked about here. That's part of the reason that we are coming out and looking for comments and asking the question. And I hear your comment and I'd encourage you to put it into the things that are being prepared. But, yes, it will make it difficult. And then follow on with some of the specific details

that would help us develop the regulatory basis that would tell us why it was difficult and the kinds of challenges that would produce and any things that might mitigate or otherwise help or detract from that issue.

MS. SEWELL: Thank you.

MR. BURTON: Okay. And we have another caller?

OPERATOR: Yes, there is one more in queue from David Walter.

You have an open line. You may begin.

MR. WALTER: Thank you. This is David Walter with Radiation Control in Alabama. I have really two questions and then a comment.

The first is as far as their basis for lowering the dose to the embryo/fetus, is this just based on the linear no threshold theory, or is this based on actual data that they have shown that there is some kind of a difference in -- biological difference that has occurred as a result of that?

And second, the comment I would say strictly speaking is I have a real problem with saying that you start the 100 millirems, or even 500 millirems, whichever one we get to that, on the day

of the person actually declaring and not taking into consideration the entire gestation period. I think that that's not biologically sane.

The last comment I had is I'm assuming that; and maybe I shouldn't ever assume, but if this does occur, are we looking at a comparable change in dose limits to members of the public as a result of a released patient?

MS. DRUID: Okay. So, Dave, I think I've got three questions. I'll try to deal with them in order. This is Don Cool. Good to hear from you again.

The underlying radiological risk basis, as it is for most of the things in the regulations, is based on the assumption that for constructing a rad control program we're operating on a linear basis. The underlying risk level actually goes all the way back to the changes in assumed radiation risk per unit dose that were coming into play in the late 1980s which were reflected in the recommendations that ICRP had in 1990 that NCRP had -- the National Council on Radiation Protection measurement had in 1993.

The NRC, when it put out its revision of

Part 20 in 1991, was aware of some of that information and had adjusted in the final rule the dose limit for members of the public but did not in fact adjust the dose limit from the proposal that had been in place in 1985 for the embryo/fetus for a declared pregnant woman, worker.

I don't think any of us have sufficient historical background to know exactly the combination of factors there. I can tell you that the change to the limit for the members of the public was because the new value was within the options that were under consideration with the proposed rule. I'm not sure that the same was the case for the embryo/fetus, so we might not have been in a position to make the change without having to republish. There may have been some other factors.

But in fact, if you look it at from a policy radiological risk standpoint and you start with a policy position that protection ought to be the same basic level it supported to a member of the public, this would be something that could be viewed as being 20-plus years overdue. So that's a bit of a long answer to what could have been, yes, LNT fills you some of the background.

Your second question was with regards to whether the limits should apply over the entire gestation period or to the time period post-declaration, and that's in fact exactly one of the questions that we're asking to try to get your views on. I think I heard you express a pretty clear view and preference on that. Again, I'll make the plea to put all of this down in writing and give us some of the background and rationale.

The rule today of course requires that the limit that's in place be looked at over the entire gestation period. That provides some measure of consistency irrespective of when the individual chooses to declare. It does impose a burden for the licensee to go and to look back at the dosimetry and other information to try and make an estimate of the dose to the embryo/fetus that has occurred from the estimated date of conception to the point of declaration, which of course can have some variability, what shielding may have been in place and other things.

The ICRP's recommendation was a little simpler in terms of application, that being that which a licensee or a user has under their control

from the moment they actually get the information, but it does have the downside of meaning that the level of protection is completely variable with regards to when the individual chooses to declare. If she were to choose to declare early in the pregnancy, then they would be relatively the same. If she chose to declare very late in the pregnancy, then they might well not be the same.

And in fact, the ICRP recommendation could in certain circumstances be viewed as less protective because the NRC regulation today provides that if the doe is within 50 millirem of the 500 millirem limit, as in 4.5 millisieverts or above, or 450 millirem or above. Then the remainder of the pregnancy is only allocated an additional 50 millirem. If you use the ICRP recommendation and she declared, and you already had 450 millirem, you'd be allowed an extra 100 millirem. So there is that difference in protection. This is the only rule that I know of where the degree of protection in fact very much depends on an individual's right to choose, because the individual has the right not to declare at all, in which case there is no legal obligation on the part of the

licensee to impose any additional restrictions or requirement because the regulation doesn't actually into force.

So again, a bit of a long-winded answer to circle back and say that's one of the things that we're particularly looking at. Obviously there are some pros and cons between simplicity and perceived level of protection under various scenarios and we're very much hoping to get views and the reasons why a particular view should have strength and support, the rationale behind it to enable us to develop a basis and argument that we would put forward for any proposal that we would put out.

And, Dave, I'm going to have to admit that I wasn't ready fast enough. Give me No. 3 again.

MR. WALTER: It had to do with what would be left. If we do go to the 100 millirem or 1 millisievert limit on this, then that would bring everything down to either 1 millisievert or whatever the occupational dose ends up being, whether it be 20 or 50. But we'd have one outlier, and that is doses to the public as a result of a released patient which would I guess continue at this point

in time unless there is a decision made because of this to lower it, it would continue at five millisievert.

DR. COOL: That is correct. The Part 20 Regs specifically take the release of a patient out of the Part 20 space and put it in Part 35. Now the staff could look at an adjustment to Part 35. I don't believe that's currently on the book, but this particular package that we're looking at is not talking about getting specific impacts or pros and cons associated with that component.

MR. WALTER: Okay. Well, a follow-up comment on that is I think that we need to address that one way or another. If there is no difference between the radiation received, the exposure received, so why is it special? If we're going to lower everything else to one, why aren't we lowering that one to one as well?

DR. COOL: I understand the comment. I encourage you to write it in as well.

MR. WALTER: Thank you.

MR. BURTON: All right. Given the dialogue that just happened, anybody in the room have a comment or a question?

MR. BROWN: If I may?

MR. BURTON: Sure.

MR. BROWN: Keith Brown, University of Pennsylvania. I think there's in my mind a very clear difference between the patient release and the other public dose limits in that the thing that is causing radiation dose to people after patient release is something that is usually very vital to the person who has received that dose and has been released. We could require people to stay in hospitals for extended periods. Having stayed in the hospital, I think one day is too long.

(Laughter)

MR. BROWN: But one could wait until the dose levels got down, but that is a very expensive proposition, and I think even more so it's not really to the benefit of the patient receiving the treatment. So while you may in fact -- I mean, I think at the dose levels we're talking about it's not absolutely clear the exact level of risk or whether there is risk in some cases, but you may be accepting a greater risk with the patient release. But you are also getting a greater benefit, I think.

DR. COOL: Thank you, Keith. I didn't

hear a question there, so we'll let that sit on the record.

MR. BROWN: That was purely a --

(Simultaneous speaking)

DR. COOL: Absolutely. Thank you very much.

MR. BURTON: Anybody else here in the room, comment or question?

MS. ANDERSON: Yes.

MR. BURTON: Yes, please.

MS. ANDERSON: Ellen Anderson from the Nuclear Energy Institute. There's a couple of just things that I am hearing and I'm sort of trying to pull together, and that is the NRC's wanting to gain closer alignment to ICRP 103. So we're talking about the one millisievert. And even within your own Issue Paper No. 3 you say that similar to the findings of ICRP 103 the report recommends a dose limit of 1 millisievert or 100 millirem including dose from the intake of radionuclides.

Now I don't know, at least within the nuclear energy industry we don't put anyone unless -- I can't think of a time we've put anyone into a situation where they would receive an internal

exposure. So we're looking at 100 millirem including internal exposure. Well, let's take that off the table altogether. So what is the number, number one? Number two, if you go back and look at the ICRP; and this is an international document, one of the things that they in most of the European countries, matter of fact anyone I've talked to overseas, there is a requirement to declare. That is not required in the United States. So again, we're looking at something that the rest of the world is doing we do not, so comparing what the rest of the world is doing and has adopted to what's going on in the United States doesn't appear to make very much sense to me.

MR. BURTON: Can I ask a question? This is Butch Burton.

MS. ANDERSON: Sure.

MR. BURTON: You said they are required to declare in Europe.

MS. ANDERSON: No, they are not.

MR. BURTON: Oh, they are not?

MS. ANDERSON: Oh, I'm sorry. They are. They are.

MR. BURTON: Oh, they are? Okay.

MS. ANDERSON: They are required to declare in Europe.

MR. BURTON: By when?

MS. ANDERSON: I don't know. I think it depends on the country when they do it, whereas we are not. And the only reason why I happen to know this is because I've had discussions with women from Europe, from the U.K., and have had this conversation. They couldn't understand why it was such a big deal for us when we started looking at ICRP 103 and when you make the determination. And it was very different than the way that -- we do it very differently than the way they do. So again, we're looking at a difference in the way in which we operate radiological protection throughout the world and here we are trying to establish something based on international standards when they -- and we're not comparing apples to apples or oranges to oranges.

MR. BURTON: I see. Okay.

DR. COOL: Thank you, Ellen. Let me take those -- actually I want to take them in reverse

order --

MS. ANDERSON: That's fine.

DR. COOL: -- with your permission. Requirements to declare. First of all, in the United States we have very well-established case law all the way to Supreme Court decisions with regards to the individual's right to choose non-discrimination. So we in the NRC staff do not believe that there is anything that would allow us to put in a requirement to declare at any particular time. That's a precedent that has been longstanding since well before the revision of Part 20 in 1991. It goes back to a Johnson Controls case and lead exposures in individuals. And otherwise I will rapidly get myself into an area that I don't have all the details on, but that's not what they were particularly opening up.

I understand that the regulatory structures in other countries are different and in a number of cases are more prescriptive. Perhaps even the word used might be "intrusive" on occasion with regards to the level of detail and requirements. The ICRP's recommendation talks about its notification or something. So the framework of protection from ICRP, from NCRP, the National

Council, does not contain a requirement to declare, simply that when notification or whatever mechanism is used within the regulatory structure of the country, then this kind of protection should be applied.

The International Atomic Energy Agency in their basic safety standards, which were recently revised to reflect ICRP 103, also talks about it in the context of notification. So that requirements document does not contain a requirement to notify, but certainly some countries -- I will not debate with you whether they do -- certainly some countries may choose to impose that requirement. We do not plan to look at that issue. The issue is still based on the individual's right to choose.

To go back to your first question, what's the number? Well, in our view the number is the total of all of the exposure routes that the embryo/fetus might be exposed to. If you are fortuitous enough to not have to worry about some sets of pathways either because of the way you operate the facilities, or in the case of materials users who were only using sealed sources, such that there is no possibility of internal exposure, then

the value of 100 millirem/1 millisievert would be what you would apply to the external exposure.

If you were in a situation such as nuclear medicine or otherwise where there was the potential for both internal and external, then you would have to look at all of the routes of the exposure. And that is true with the regulation as constructed today and is the same as what the staff would consider in looking at whether or not to move to changing the numeric value to realign with the general policy position of providing the same level of protection for the embryo/fetus as is provided for a member of the public.

MR. BURTON: Okay. Let's go to the phones. Operator, do we have anyone who'd like to speak?

OPERATOR: No, at this time there are no questions in queue.

MR. BURTON: Okay. Thank you. Anybody else here before we move on?

(No audible response)

MR. BURTON: Okay. Well, Linda, David, Keith, Ellen, appreciate your feedback. My hope is that the conversation that you had with Don will

help inform any comments that you or anybody else who is participating may provide. We appreciate that.

Okay. So with that, let's go on to our next speaker who you have already heard from extensively, Dr. Don Cool. Don is a senior advisor in NMSS and he's going to be discussing ALARA and individual protection.

So, Don?

DR. COOL: Thank you, Butch. Let's go directly to the second slide. The Commission gave the staff direction on a pair of related issues. The one that everybody initially focused on of course was the question of whether or not there should have been or should be a change to the fundamental occupational dose limit. And the Commission said to leave the effective dose limit at 50 millisieverts/5 rem per year.

But the Commission recognized some of the underlying arguments that were presented in that Commission paper in 2012 with regards to the reasons why both the ICRP and in fact the NCRP, the National Council on Radiological Protection and Measurements, had provided the recommendations they did, which in

ICRP's case changed the dose limit. And then that was to provide a greater degree of confidence that an individual during the course of their occupational exposure over a lifetime would not achieve cumulative doses that would approach 1 millisievert or 100 rem. So the Commission asked the staff to continue discussions with stakeholders on alternative approaches to deal with individual protection, which while maybe we continue to be within the 50 millisievert/5 rem level might over the course of a number of a years start to get to more significant cumulative exposures. That resulted in us now engaging with this particular question, which is what could perhaps be done associated with the regulatory requirements to look at the question of cumulative exposures and what approaches might be used or acceptable in order to provide some additional measure of control if those cumulative exposures started to get to levels which might be considered as an issue? Let's go on to slide No. 3. So in looking at this, looking at individual protection and the ALARA levels, there are a couple of different areas that the staff is looking at and asking questions on. The

first is the question of actual planning for radiation protection activities and the lowest reasonably achievable. The second is specific mechanisms that could be utilized to look at cumulative exposure, take restrictions. And the third is an issue with regards to the possibility of concurrent exposures, occupational exposures occurring during the same period of time. I'm going to address each of those briefly.

So going to slide 4. First, the question of ALARA planning. The current regulations today require that licensees have a radiation protection program that they develop, document and implement that program. The next section, 20.1101(b), requires the use of procedures and engineering controls to reduce exposure. That's the shorthand version of what everybody knows as as low as reasonably achievable. What that regulation does not actually say is that there needs to be preplanning for that on any sort of ongoing basis, or looking at jobs or otherwise.

And what the staff has seen looking across the wide range of uses of radioactive material is that there is a wide degree of variation

between different types of uses and even within types of uses regarding the extent to which activities are actually planned to try and specifically minimize exposure in that setting or not. And so the staff is looking at the question then of whether there should be a requirement added which would require that the licensees, as part of their radiation protection program, have to do some additional degree of planning for reducing exposures in the particular activity.

I want to use this as a little segue to something that I've said in each of the other issues, which is when the staff says "propose," that doesn't mean that we had in our advance notice a specific regulatory text. And so in fact you'll see in the questions in a moment that one of the things we're asking is not only should a requirement like this be considered, but what might be the form of language, because that could make a huge degree of difference in the way in which it could impact different types of licensees.

If we can go to slide 5, and I'll move on to the next subject, which is looking at the question of trying to deal with cumulative exposures

and looking at occupational exposures within the boundary of the existing dose limit.

The Federal Guidance for Occupational Exposure which was put out by the Environmental Protection Agency, revised in 1987, signed by the President, included a concept called the administrative control level. And it contained the rather strong suggestion that such levels be incorporated into programs to assist in the planning of ALARA activities. The NRC did not include that requirement in the revision that was published in 1991. That information came out and was coming under discussion after the time of the proposed rule.

And people have used that term and a variety of other terms: planning levels, administrative levels. ICRP uses the word "constraint." There are all sorts of things out there which generally refer to a general concept of some sort of boundary, usually less than the limit itself, which you do not plan to exceed and which if you were to exceed it, would then require some sort of actions to try and figure out why and what you want to do about it.

What the staff has suggested for discussion and getting comment in this advance notice is the consideration of requiring a licensee to establish an administrative control level and establish the criteria that they would use, what that level would be and the actions that they would take. The staff has not suggested that an actual numeric value would be placed in the regulations. In fact, the staff is attempting to suggest here that there might be several equally valid possibilities that licensees could choose to utilize within their own programs and be found acceptable by the staff.

So the slide has several different values, and people will immediately recognize the first one. Ah, well, that's what ICRP's dose limit was for the average over any five-year period either as a single numeric value or as a running average. The third one, the 10 millisieverts times the age in years, is actually the recommended approach used by the NCRP, the National Council on Radiation Protection and Measurements, in their Publication 116.

An additional approach might be to not

impose any additional restrictions lower than the dose limit until such time as the cumulative exposure to an individual exceeded some value in millisieverts. If you're trying to avoid getting to one sievert, then such a level might be half a sievert, or three-quarters of a sievert. In other words, 50 rem or 75 rem cumulative exposures before a licensee would then start to impose additional restrictions on the individual's exposure in a particular year.

And as I said, those values are tossed out there for purposes of discussion and for purposes of people looking at what implications there might be within their programs. The staff is not suggesting in this ANPR that one of those would be adopted as an actual numeric value in the limit. The requirement, as the staff envisions it, would be a requirement that you have the administrative control level and you say what you're going to do if an individual gets to or exceeds that level.

And the staff is sort of envisioning how that might look. Late violation would be one, if you didn't establish such a level; or two, you didn't do what you said you were going to do if you

went past the level in terms of looking at it and deciding what you wanted to do in the program or otherwise. So the staff is looking for comments and views on this.

A number of things go along with this, and you'll see in some of the questions that I go over in a minute the degree of flexibility that the staff might allow including whether or not in fact a licensee might choose to use different criteria for different segments of their worker population.

If you start to look at this, you can sort of immediately figure out that some of them require you to keep rather detailed records of cumulative exposure over longer periods of time. All of that has burden. And so one possibility would be to sort of minimize that for groups that really you don't expect to have any issues and they'll only impose additional burdens on your own program for those that there might actually be more significant impacts because the individuals are more likely to exceed that particular level. I'll go into that a little bit more when we get to the questions in a moment.

Let's go on to slide No. 6 and the third

issue, which is the issue of concurrent exposures. The regulations today talk about making sure that you provided to your employer the records of the occupational exposure in the current year. Now for the most part that's written in the context of somebody who works here and then they finish working here and they go work some place else for the other half of the year, something like that. So it's sort of a linear progression one at a time.

And that's all well and good except we know that there are segments of the community where you may have individuals working simultaneously in multiple places. One of the classic examples that a number of the folks in the States and otherwise have brought up is the fact that practice privileges in hospitals, medical situations, many physicians and otherwise will have practice privileges in multiple institutions.

Those institutions are likely to be different licensees. And if they are practicing in more than one institution, therefore operating under different licenses, how do we keep track of the cumulative exposure that a particular individual is getting during the course of a year when they may be

working under multiple licenses when there is no explicit consideration or requirement to try and keep track with some frequency of exposures that may be being received during that somewhat concurrent situation?

So we are looking at the question of whether there should be added to the regulation something that would try to address this, and again, the form in which that would take place. Because obviously on one of it you could say, well, if you work there each day, you need to provide it back to all the other licensees. Well, that doesn't really work very in the context of dosimetry that's usually done once a month or something like that. If you do it once a year, you've sort of lost track and you could exceed the dose limit which is based on a year because you wouldn't know about the concurrent exposures until the year was over.

So we're looking for pros and cons associated with how you would write that, what the implications are, how that would work with badging and recording and reporting and a bunch of other logistics that might go into play with that.

So if we can go to slide 7 and now go to

the questions. So we'll go back. Question 1: The implications of adding ALARA planning requirement. What kind of changes might be anticipated?

What kind of language, question 2, might be appropriate for adding this? In this case it would be a wonderful thing if you would answer the question by saying, well, we think you should write it thus and so. Write out what you think the form of the words might say and then say why do you think that would work and its pros and cons and implications. That would help us a great deal in developing a regulatory basis.

So then the third question; and this moves to the second point with regard to methodologies and cumulative exposure, how do the methodologies that are described as possible alternatives that the licensee could choose to adopt within their own program work for the different classes of licensees?

The NRC staff is fairly confident that there's no such thing as one size fits all. On the other hand, a regulatory structure that's completely wide open leaves a lot of room for interpretation and argument back and forth, so we're looking for

views from various stakeholders and various communities of licensees on the kind of approaches that would work or not work, and why, would fit within that form, what the implications of that would be.

The fourth question, as I mentioned as I was going through the issues, should the regulation require a single approach for any given licensee or in fact allow the flexibility for the licensee to adopt a program which could have more than one approach for different categories of workers within their facility, and the implications and basis and supporting views for that.

If we go to slide 8, just following up on that, how do those different options; if we assume for the moment that there was a form of words that required a licensee to have some sort of administrative control and how those might be implemented by a licensee, impact their ability to best address radiation protection within their programs?

We have heard over the course of time and in various meetings laments about how the rad protection program is simply the cop and they come

in and beat up whoever it is over the head and they go off and nothing really changes. We would prefer that the regulations facilitate good radiation protection by licensees and licensee uses. So we're looking for how can this help in getting the best radiation protection practice in different categories of licensees?

Question 6: Okay. So we've thrown out several options there. Are there other possible options that maybe should be considered as possibly acceptable approaches? And, even stepping back from that, other approaches to addressing the issue in terms of what might be required in the regulation or not having the requirement and why that would be the best approach which would deal with the underlying issue that the Commission has asked the staff to address.

Question 7 gets to the potential impacts associated with concurrent exposure. Obviously, if you start to add requirements to go looking figuring out if somebody else is working someplace else, well, you've started to intrude on an individual's privacy. Are you working for somebody else or not? So there could I suppose be some legal implications.

There are obviously the questions of how often you do it, how you keep the records together, who's keeping track of it, who would be responsible at any given moment s you start to approach the limit? So who has the ball? Who would get the violation and otherwise, which could be a rather dicey situation?

And then associated with all of this one specifically associated with the translation of these requirements through adequacy and compatibility to our compatriots in the various regulatory programs, the extent to which the states should adopt a similar approach, which would have a lot of flexibility, or have the option to be more restrictive and simplified, which the more restrictive and the more you state as specifications, obviously the easier it is for everybody to understand what it is they've got to do, but it reduces flexibility in the program. So we're specifically on this issue looking for some of those implications for the states in the various state program areas that are part of the overall regulatory structure that we have to look at.

And, Butch, that completes the discussion. We'll come back to the summary and talk

again about submitting comments after we've had any questions.

MR. BURTON: Okay. Sounds good. Thank you, Don.

Okay. So we're going to open it up now for feedback from you all. I'm going to ask the folks you are on the phone who may want to comment please hit star one now. And while you guys are queuing up, I'm actually going to open it up to the folks here at headquarters. If anyone has any comments, questions, speak up. Keith?

MR. BROWN: Keith Brown, University of Pennsylvania. I have a question concerning the need for a change to the ALARA regulation to specifically name planning. I will admit I fear that if a regulation requires planning, it will not be as flexible as what is permitted with one established in a program on their own, but my question is that if I'm required to the extent practical implement procedures and engineering controls based on sound radiation protection principles to achieve doses as ALARA, am I not required already to plan? Isn't this a question more of how the existing regulation has been implemented as opposed to the need for an

additional burden, additional plan?

Number two, although they aren't called that, they're called trigger levels, in effect the NRC has issued in guidance a number of administrative control levels. Typically they, for materials licensees -- I'm not quite sure how the reactor licensees work, but for materials it's for your type of license here are the ALARA Level 1, Level 2 triggers. They are the levels at which we are expected to take additional measures. And I have never believed that made a terrible amount of sense. My doses are currently under 10 millirem per year on average. I guarantee you they'll be under 10 millirem on average per year in the future. But my people who are handling tens of gigabecquerels of material have a bit higher, and yet, at least according to the NRC guidance, there's a single level for all these people. We do in fact establish different ALARA trigger levels for our janitors than we do our people handling large quantities of material.

So I guess my question is rather than a regulation could this be implemented in more guidance on establishing administrative controls,

better tailoring administrative controls according to job function instead of license types, because my license type has a lot of stuff going on in it --

PARTICIPANT: (Off microphone)

MR. BROWN: Oh, I'm sorry. The University of Pennsylvania has a large broad scope, has multiple hospitals. We have three cyclotrons; one for people, two for materials. We have quite a lot of stuff. We have a Tandem Van de Graaff. I'm glad still have one of those hanging around.

(Laughter)

MR. BROWN: My other question is there's been a lot of talk by the NRC -- well, some talk by the NRC of the possibility of a national dose database of some sort to help control individual's doses. I love the idea of a dose database. I hate the idea of individual doses so much as a dose database that would allow me to know for all the nuclear medicine technicians dispensing -- had isotopes around the country, what are their doses so that I can say my doses are right on target. My doses are high. I need to look at that. Whoa, I'm doing really well here.

Is there any possibility of the NRC

providing a resource to facilitate a level of cross-communication between materials programs that we currently don't have? Or we do informally, but have no formal mechanism.

DR. COOL: Thanks, Keith. Some great questions. Let me address the third one first, which is hold that thought --

MR. BROWN: Okay.

DR. COOL: -- because next week that is one of the two issues that we'll be specifically addressing associated with reporting and record keeping. And we've got a lot more information that we'd like to go over, and that fits exactly into that context. So rather than sort of diverting from this pair of issues, that is a very important one and I would like to --

(Simultaneous speaking)

MR. BROWN: And I knew it was there, but I did want to bring it back here because I do think it has tremendous applicability to the question of ALARA, especially for materials licensees. Well, I shouldn't say that. I don't know enough about reactor licensees.

DR. COOL: And I would -- it's up to

you, but the staff very much agrees. We have seen correlations with information recorded and information availability and trends and doses. So that is one of the things that has factored into our considerations of perhaps requiring additional reporting and record keeping and how it would be used. And we'll go into a lot of that next week. So it's a very good thought and we'll sort of set that on the -- Butch, I don't know, do we have a little corral or a little parking lot?

MR. BURTON: Parking lot? Yes.

DR. COOL: We'll parking that for a little bit. We'll come to it next week. A very good thought.

To come back to the first two and start with my admonition to put all of this into some comments and some of the rationale that you discussed and elaboration a little bit more of what could work and the implications associated with that.

First ALARA planning in general. It could be interpreted, I suppose, that the only way to effectively accomplish that which the regulation requires, which is procedures and engineering

controls to reduce exposures, de facto constitutes planning. And a lot of planning goes on. What the staff would reflect to you, however, is that we have on the record in interactions up to this point also comments that simply say you can't plan. We go off and do and the doses are what they are, which leads us to a little bit of a conundrum. And you can't just go off and write a new piece of guidance sort of disconnected to some regulatory requirement.

So it would be interesting to see your view and associated rationale for why some additional guidance across categories of licensees would be within the existing regulatory requirement and why the staff could perhaps choose to move in that direction. Clearly some categories; I'm going to look over at our nuclear industry rep here, they do planning in excruciating detail. I'm not going to speak for them, but that's how they implement that. And that's wonderful and good. And we have situations on the other end. And we're looking to try and provide the right set of tools to help improve protection across the wide range of uses.

And that then actually gets me to your second question, which we've also talked a little

bit about, about whether you simply place it into guidance, because there's been guidance over the years with sort of generic ALARA levels and otherwise.

The staff, well, I don't know that we've thought about it in exactly that construct. In fact, I would reflect to you my personal view at the moment that placing a requirement like this would be a move towards providing the licensee a bit more flexibility to do perhaps exactly what you've described your program does and be able to write down the rationale and approaches for that.

Having said that, again we would very much like for you to sort of elaborate on that, sending us in some comments on how that program works, how you set it up, what regulatory language might go in which would either sort of improve your ability to say to the university system we need to do this. This is the right thing to do. Or, gee, you just threw a big monkey wrench into it and you just made my life miserable, and the associated whys that go along with that.

MR. BURTON: Okay. Good. Anybody else here in the room, comment or question? Please,

Ellen.

MS. ANDERSON: Ellen Anderson from the Nuclear Energy Institute.

Don, reading through Issue No. 4, a lot of discussion about cumulative exposure. If in fact we have to monitor cumulative exposure, we're going to have to go back to collecting dose histories which was actually taken out of the regulation during the last revision of Part 20. Is the NRC foreseeing requiring dose histories, cumulative exposure collection? I find it interesting because on page 11 of the document you talk about "NRC staff continues to support this position and does not plan to consider a lifetime limit." So where are we going with this?

DR. COOL: That's a good question, and the short cryptic answer is we're trying to figure that out. So we would like your help, you, everyone else commenting on it, to help us figure that out.

So to sort of separate that into a couple pieces: The NRC in publishing the revision to Part 20 last time specifically addressed the question of a lifetime limit and said we weren't going to do that. There are other sort of legal

right-to-work and other implications, not all written out in the final rule statement of considerations, which led the Commission to that view. And at the moment the staff has not considered reimposing such a view. That doesn't mean that it couldn't, but right now that wasn't one of the things that we put on the ANPR for comment. We would welcome you addressing that, either agreeing with that or disagreeing with that.

The second piece of that puzzle would be the question of would you need to start keeping dose histories? And the staff, in constructing the advance notice and constructing it the way we did, was proposing an approach in which the licensee could choose whether or not to do that in order to gain the flexibilities that it might need to deal with specific exposure situations for some or all of their employees.

I know of many licensee cases where -- and I will look over at Keith who was talking about the doses that his individuals are receiving, they're nowhere close to any of the values that we were talking about here. And so, it would probably be pretty simple to adopt a level which none of your

folks would ever touch, which would never worry cumulative exposures, and you wouldn't need any cumulative dose histories, and things could probably continue on just the way they are now.

On the other hand, I know that there are some medical situations and many that the states have to deal with, on the machine-produced side in particular, where we understand there are very significant exposures approaching the dose limits year after year after year and for which for a subset like that having an alternative approach to look at it might warrant the resources and otherwise to keep that data.

Part of what we would hope for in providing comments is how each of you, each of the people who might comment on this, would view this, view the flexibility, view the impacts associated with it, whether there are places where that would be something that would be advantageous to a licensee for a particular use and what the ramifications are in the program.

The staff has not at this point made any particular decision to do one or the other. We are looking for how you view the options and what the

implications are so that we can try to write a regulatory basis that would support a particular approach with all of the pros and cons and regulatory impacts that would be associated with that.

So send me those cards and letters.

MR. BURTON: Okay. Sounds good. Okay. Let's go to the phones.

Operator, do we have anyone queued up?

OPERATOR: Yes, we have two questions in queue. The first one comes from David Colker's line.

You have an open line. You may begin.

MR. COLKER: Actually, my questions were with the first issue. I don't know if you all want those now, or just we can submit in later.

DR. COOL: You can bring it up now. The phone is open. Let's go.

MR. COLKER: Okay. If you go to a declaration and the female declares late in the pregnancy and you determine that she has already exceeded the dose level for the declaration, at time of her declaration by back calculating to conception, does that put you in an area of non-

compliance? That's my first question.

And then sort of a comment. For fuel-type facilities pretty much our internal exposures are limiting factors for determining dose, and we have a lot of difficulty, or we think we have a lot of difficulty saying 100 millirem internal exposure for many of these alpha-emitting radionuclide such as uranium transuranics is that they're difficult to detect at the 100 millirem level.

DR. COOL: Okay. Thank you for the question and the comment. Again, I'll ask you to sort of put it into writing and explain it a little bit. NRC's regulations today contain a provision which has an allowance if you are within or exceeding the existing limit for the embryo/fetus at the time of conception. Although the staff did not explicitly write this out --

MR. BROWN: Declaration.

DR. COOL: The declaration. I'm sorry. I apologize. The declaration of the pregnancy. The staff, while not explicitly writing it out, was I believe considering that such a provision would still have to be in place. It doesn't seem reasonable that an individual declaring could

automatically put a licensee into non-compliance. And we would invite comment on if the numeric value were changed, whether the existing provision, which would allow a 50 millirem remainder if -- after declaration had already been exceeded, whether that would remain an appropriate number to utilize or not and the implications associated with it.

MR. BURTON: Okay. Good. Good.

Operator, could we have our next commenter?

OPERATOR: Sure, the last question in queue comes from Frank Costello's line.

You have an open line. You may begin.

MR. BURTON: Frank, you on?

(No audible response)

MR. BURTON: Okay. We lost Frank. Okay.

MR. COSTELLO: I'm still here. I'm still here.

MR. BURTON: Oh.

MR. COSTELLO: I put it on mute.

(Laughter)

MR. BURTON: Okay.

MR. COSTELLO: The question is about

the question current dose. As your slide indicated, Part 20 right now it seems to me requires licensees to limit dose by doses they receive from other employment. It's hard to do. It's certainly not a convenient thing to do, but it's already in the regulation. I don't know, to be honest, how the new Part 20 could change this. Would the idea be that you wouldn't have to take into account other people's doses that are -- I mean, you might change or make it easier, but the underlying requirement that the total dose of all sources should be equal to the dose limit, is that likely to change?

DR. COOL: Thanks, Frank. That's a good question. And I'm going to look over because I'm in hopes my lawyer will tell me if I've suddenly strayed off track. The requirement today applies to a licensee and requires to all of the sources under their control. The issue that we're looking at is the question of whether an individual is actually working for two entirely different licensees, because I don't believe today that you could get quite to an interpretation that says licensee A has already a requirement to take into account an exposure that the physician might receive while

working for licensee Z in another jurisdiction, which might be the same regulatory jurisdiction. They might both be in Pennsylvania. Or as in this area around Washington, D.C. could be an entirely different jurisdiction as people can quickly move between Virginia, an Agreement State, Maryland, a different Agreement State, and the District of Columbia, which is actually NRC jurisdiction.

MR. COSTELLO: Can I interrupt you for a second, Don? If here is current -- which I think you brought up in those slides, it says, "Licensees shall reduce the dose that an individual shall be allowed to receive in the current year by the amount of occupational dose received while employed by any other person." Right?

That being the case, if his limit is five rem, if he receives two rem at another individual, then you can't give him more than three. So isn't the question of concurrent doses already there?

DR. COOL: That's one possibility. I'd encourage you to write it out so that we have that piece of it. There was a sufficient question in our mind and raised by our various stakeholders in the

discussions leading up to this that we wanted to put this on the table. If you have a very -- I don't know that I would call it elegant, but if you have a convincing argument and background that says it's all there and it's an interpretation, I would dearly love for you to submit it so that we can get into written the regulatory basis.

MR. COSTELLO: I mean, you have it on the slides. I think your black letter law of average is pretty clear, but I'll maybe send something in.

MR. BURTON: Thanks, Frank.

Operator, is there anyone else in the queue?

OPERATOR: Yes, we did have a question from Gene Rosenblatt to come in.

MR. BURTON: Okay.

OPERATOR: You have an open line, Gene. You may begin.

MR. ROSENBLATT: Thank you. I had a question about the declaration of pregnancy and the employer's position. With the reduction from 500 to 100 which will be applied across the board to all radiation sources in states, there are going to be

thousands of young women now fall into this rule as they declare who have jobs that potentially may not be able to be restricted to less than 100 millirem during the term of their pregnancy. I don't easily find any regulatory position on the employer's responsibilities if they can't provide that dose reduction within the scope of the job.

And I've had this arise with physicians who are paid on a case basis who declared pregnancy and then were told we can't possibly achieve that dose limit of 500 millirem if you're going to be doing interventional radiographic cases eight a day. Either you're going to have to stop working and make any income, because you're paid by the case, or remove the declaration. And I don't find an easy case load of work position on the employer's responsibility if they can't provide the reduction.

DR. COOL: Okay. Thank you for the comment. I'm not quite sure I've got a question there. The staff has heard that. We would encourage you to submit that with the information, because that is one of the issues. And I don't think physicians or residents, or otherwise, as has been raised to us in some other forums -- there is

not necessarily an easy solution and we need to document the implications with that.

MR. ROSENBLATT: Thank you.

MR. BURTON: Operator?

OPERATOR: At this time there are no more questions in queue.

MR. BURTON: Okay. I'll turn it back here. Comments or questions here?

MS. ANDERSON: I have a question going back to the first one as well. While I was sitting here I had a question. But anyway, Ellen Anderson from the Nuclear Energy Institute.

Has the NRC seen any studies or are there any studies in the U.S. that can actually document, show the difference in risk between 500 millirem and 100 millirem, say over a gestation period? What's the difference? Is it 200? Is it 100? Is it 300? Is it 400? Is there anything scientifically available to give us that type of information so that you can make a revised regulation based on sound science?

DR. COOL: Thank you, Ellen. And I wish I could proceed to pull up a list of references that would give you that information, but as I suspect

you know, the area in which all of these regulations are operating are an area -- are within the dose range which is below that which can be clearly discerned in terms of changes in risk.

Now, over the course of time we've had some improvements in epidemiology. There's currently work being undertaken by the National Council on Radiation Protection and Measurements looking at lots of occupational workers, which will help to bring perhaps a little bit of additional light to some part of that spectrum of exposures. And there's obviously a lot of work going on in various cellular, molecular and other systems trying to look at whether there are changes and what the shape of the dose risk relationship might be.

What we have today is in fact a picture which is not clear. You have some types of studies and some types of systems which appear to show a fairly linear effect. You have other types of systems which do not appear to show that sort of effect. In some cases there may be thresholds. We know that as you move up in biological complexity from cells to tissues to organs that the kinds of various mediating and other factors going on within

the biology have effects on the outcome of various insults. So it's not intuitively obvious that that's what you get in singular cellular systems directly applies or doesn't apply to organs, tissues or organisms.

And so in the face of that uncertainty the international community has continued to recommend that for protection purposes, not saying that this is the actual risk relationship, but for protection purposes that we use a linear approach and make some assumption with regards to the risk. That's also part of the reason why the ICRP says that it is not exactly appropriate to go and take those very little numbers and try to sum it up and claim you have with absolute certainty some particulars, because it is a regulatory construct which allows a systematic reproducible everyone-understands-exactly-how-it-works approach to radiation protection. Not necessarily saying that that is the actual risk to Ellen Anderson from X exposure that you received while being -- whatever you happened to do working with radioactive materials.

So the answer is no in the deep detail

that I think we would all wish we had.

MR. BROWN: I'm going to make a comment about the dose for a -- across pregnancy. I'm going to make a legal comment that I'm sure not being a lawyer will be wrong, so I ask you to excuse that.

My understanding when the current Part 20 was put in place was that if a woman declared pregnancy and the employer was not able to keep to the 500 across the pregnancy, that in fact that she was not guaranteed continued employment. And I don't know that's true or whatever, but it certainly was true I think that the choice was hers. She could go to 500 millirem or she could not declare and be allowed a 5 rem dose.

Would the NRC entertain any thought, would have any -- entertain the notion of allowing the pregnant worker herself to decide on whether 100 was appropriate? That is to say if it is a case where the physician would not be allowed to work at 100, but with reasonable accommodation could make the 500, that she could avail herself of the reasonable accommodation to get to 500, which would be lower than her normal dose of 20 millisievert or something like that.

So I throw that out there as a -- it's a question, so I'll say -- ask you.

MS. ANDERSON: Can I make a comment on that? Ellen Anderson. I agree with you. If the woman has the legal responsibility and right to either declare or not declare, then why can't she make the decision about 100 versus 500, especially if there's no sound science to tell us either way?

MS. MAUPIN: How about this? If the woman has the right to choose, she can choose to declare and she can choose to withdraw that declaration, if she so choose if she finds that it is hindering her ability of employment.

MR. BROWN: I believe that's allowed today.

MS. ANDERSON: Yes, it is.

MR. BROWN: What's not allowed today is she wants to be employed but wishes to have some additional protection that they can provide unless they go all the way down to 500. I'm not sure it's a huge issue. We tend to not have trouble making, at least our people. But we have some suspicion that if the limit becomes 100, we may have trouble accommodating pregnant workers in certain functions

in getting down to 100, whereas again we've been able to accommodate when we get to 500 without any particular problems.

So my comment about your comment is I think I'm trying to make a distinction between withdrawing, which is already allowed, and choosing the level today and a level that's proposed.

MS. MAUPIN: Oh, okay.

MR. BURTON: And I need you to identify yourself.

MS. MAUPIN: I'm Cardelia Maupin.

DR. COOL: Okay. Keith, that's a very interesting question and a very interesting idea. I think we've sort of heard it before, but it may have slipped below the sort radar screen. I would very much encourage you to try and sort of write that down with how that might work and how it could be administered in a way that wouldn't just be sort of subject to abuse or just doesn't really exist, or otherwise.

I can think of a couple of cases, even the current public dose limit, where there is a provision to do something more than the 100 millirem with some very tight strictures. So it isn't

necessarily without precedent, but I think we'd need some very careful boundaries around it. But I would welcome you to put that on the table for consideration. That's a very interesting option.

MS. MAUPIN: Cardelia Maupin again. Wasn't there something in the previous ICRP 60, or one of the earlier versions about the environment for the pregnant woman and restructuring the working conditions or so that the dose is limited? Wasn't there something in the previous ICRP?

MR. BROWN: I think she's attacking my attempt to be a lawyer.

(Laughter)

MS. MAUPIN: During the ANPR I went to so many different of the ICRP historical -- I don't want to go through the history of ICRP -- just trying to just get up and see and understand all the nuances, because there are so many different nuances. So that there was -- we think of -- called a C provision or something like that where they could do something different, that you could do something different to control the dose to the fetus, if I'm remembering correctly.

MS. ANDERSON: Making accommodations?

MS. MAUPIN: Yes, making accommodations.

MS. ANDERSON: Reasonable accommodation.

MS. MAUPIN: Yes, and it was in the one of the ICRP provisions that you could do that, in one of the earlier ones.

MS. ANDERSON: This is Ellen Anderson from NEI. As a former radiation protection manager in a power plant I can tell you that reasonable accommodation has always -- and at least as long as I've been in the business; and it's been a long time, a reasonable accommodation has always been made for a declared pregnant woman, including myself at one time. But I can also tell you that women have not declared because they didn't want that issue and potential not being able to do their jobs. So I see that.

But I'm also going to tell you that we've also been into situations where we've had young women who have decided they are trying to get pregnant and now I'm seeing -- if we're going to lower the limit to 100, I'm going to see more and more of that. Sometimes it takes a while. Okay? So now we're going to pull somebody out of the work place doing their normal job because they are trying

to get pregnant. I can see this happening and ballooning and becoming a bigger issue.

MR. JIMENEZ: I have a comment. Manuel Jimenez, NRC. I find it interesting we are arguing whether or not the woman can argue with 100 or 500 when the woman can have an abortion, which would be far significantly worse for the baby than 100 or 500 millirem. So it's kind of interesting. I don't know how that fits in, but it's kind of interesting we're arguing over 100 versus 500, even versus 5 rem for the baby when that baby can actually be killed, which would be a little significantly -- far significantly than the dose of 500 millirem, or the risk of 500 millirem.

DR. COOL: Okay. This has been a very interesting discussion. I'm going to cycle back to what I said a moment ago, which is that I'd very much invite you to put together that argument in a written form including if possible how the language might appear, with or without being a lawyer or insulting a lawyer or otherwise, so that we can consider how that might work in considerations moving forward towards a regulatory basis.

MR. BURTON: Okay. Other comments here

in headquarters?

(No audible response)

MR. BURTON: No? I'll open it up again to the operator.

Is there anybody else queued up to speak?

OPERATOR: At this time there are no questions showing in the queue.

MR. BURTON: Okay. All right. We are about to wrap it up, so I do want to just --

MS. ANDERSON: I do have --

MR. BURTON: Okay.

MS. ANDERSON: Let's go back to ALARA. Okay? Again, Ellen Anderson from the Nuclear Energy Institute. I have a concern in that at least within the nuclear energy industry, which includes our fuel folks as well as power reactors, that we hold our workers to understanding what their dose limits are and to work to those limits. It's the licensee's responsibility to enforce the regulation within the plants, however, we do hold our workers accountable down to if you're entering an area in the radiologically area, they're are to understand what that condition is. How many millirem per hour is

that? What are they doing and that kind of thing?

So going back to the whole issue of concurrent workers, I could see an awful lot of confusion if we get into a situation where a person is at multiple licensees different days of the week, whatever. And if an administrative control limit, or an ACL, is designed, appointed, determined by each one of those licensees, I would expect that the worker would understand what their ACL is.

Now the question is now we're asking a person who goes from one facility to another, may have a different ACL at each one. And why do I have one here versus there? Those are the kinds of things that I think would cause quite a bit of confusion. And we can talk about the other confusions that will occur next week with different units, but now we've got just this ACL is different, potential ACL is different at different facilities and I think that's something that the Commission should consider.

DR. COOL: Thank you, Ellen. That's a very good point, an argument and point that needs to be considered with the degree of flexibility that you might or might not allow. That's one of the

down sides of flexibility is differences that an individual might work at. You're quite right.

MS. MAUPIN: The only think I would say is one good thing about the --

MR. BURTON: Cardelia Maupin.

MS. MAUPIN: -- Cardelia Maupin; I'm sorry -- the nuclear industry is that you guys import your dose to our system. And so our Office of Research collects that information and we put together a book annually so we can see who those persons are that are working concurrently. That's awesome. If we could get that; and which I'll talk about next week, with the other licensees, then we could handle the problem. I think you are right saying, yes.

MR. BURTON: Good. I think I'm going to do one more round, opportunity for people to provide input. Again, I'll start here in headquarters. Anyone?

(No audible response)

MR. BURTON: No? Okay.

Operator, anyone else in the queue?

OPERATOR: At this time there's no one else in queue.

MR. BURTON: Okay. All right. So if there are no more questions or comments, I think we'll start our wrap-up. Before I turn it over to Don for the closeout, I want to remind everyone to please fill out the feedback forms and leave them with us. If you prefer, you can take them away and think about it and mail it back to us at your convenience, but it really is important for us to get that feedback to improve our meetings.

As was 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 reg basis. So please be sure to submit your comments in writing.

We also want to let you know that the Webcast of the kickoff meeting that we had back on September 24th is available for viewing through the public meeting Web site, as are the slides and transcripts from that meeting. In fact, all the presentation materials for all of these meetings will be available at that site.

Finally, I want to make sure that everyone is real clear about some recent changes we made to the schedule of the meetings, and I'm going

to need some help with this. We are going to have the meeting next week, October 16th, on reporting of occupational exposure and metrication units of radiation exposure and dose. My understanding is that the following meeting that was scheduled for October 23rd has been canceled? That is a question.

(No audible response)

MR. BURTON: Okay. I'm seeing heads nodding, so that meeting scheduled for October 23rd will not be held.

Now the purpose of that meeting was to deal with any additional issues that weren't discussed at any of the earlier sessions, as well as the discussion of the path forward. So I assume there will be opportunities at the other meetings to do that.

And again, the final meeting that was scheduled was for October 30th. That is still on, or has that been canceled?

(No audible response)

MR. BURTON: That has also been canceled. So next week's meeting will be the final meeting. So that will be the opportunity to address any other issues that weren't addressed earlier.

Okay. Very good.

Let's see, lastly, I do want to thank everyone for coming. I in particular want to thank our transcriber Toby as well as our operator Jamesa, both of whom did a great job.

And I think with that, I'll turn it over to you for closeout.

DR. COOL: Thank you, Butch. Let me add my thanks from the NRC staff to everyone participating, raising some very interesting issues and questions and ideas. Reemphasize keep sending in those cards and letters, the information. It's not just the answer to the questions, but the rationales, the whys, the background information that goes along with it that will be extremely valuable to us in actually trying to craft a regulatory basis that supports a particular proposal.

The next steps in the process, obviously we have the advance notice which is open for comment until November 24th. The staff will be looking at all of those comments and developing a draft regulatory basis which at some point in the future, which I will not attempt to predict a particular

date on, would be a draft regulatory basis which the staff would make available for comment before taking a proposed regulatory basis to the Commission for the Commission's approval. It would only be at that point that the staff would actually begin formal preparation of a proposed rule, which would then be available again for public comment.

So we are still several steps away, but the earlier we have thoughts and viewpoints and information to help develop the rationale, the better off we are, which is why we have put out this advance notice and why we're very much encouraging all of you to provide that information. Obviously, you can submit those in any of several ways. They were on that last slide which may or may not still be up. But in addition to that are in the advance notice. Also available on the public Web site.

As Butch said, we will have one additional meeting next week dealing with the issues of reporting and metrication. We know we had the little parking lot issue which is clearly in the reporting area. And, Keith, I hope that you'll be able to join us by phone or otherwise so that you can help us to engage in that discussion. We will

also use that as an opportunity for anyone who might want to raise any questions on any of the previous issues that have come to your mind over the last couple weeks as a result of these discussions and thinking more about that.

And with that, thank you very much, folks.

(Whereupon, the above-entitled matter went off the record at 2:41 p.m.)