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NUCLEAR REGULATORY COMMISSION

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KICKOFF MEETING ON THE ADVANCE NOTICE OF PROPOSED RULEMAKING (ANPR) - POTENTIAL CHANGES TO NRC RADIATION PROTECTION REGULATIONS

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WEDNESDAY

SEPTEMBER 24, 2014

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ROCKVILLE, MARYLAND

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The meeting convened at the Nuclear Regulatory Commission, One White Flint North, Commissioners Hearing Room, 11555 Rockville Pike, at 1:00 p.m., Sarah Lopas, Facilitator, presiding.

NRC STAFF PRESENT:

SARAH LOPAS, Facilitator

DONALD COOL, PhD

CARDELIA MAUPIN

ALSO PRESENT:

ELLEN ANDERSON, Nuclear Energy Institute

STEWART BLAND, Chesapeake Nuclear Services

MICHAEL BRODERICK, Oklahoma DEQ (*)

VICTOR DIAZ (*)

WILLIE HARRIS, Exelon Nuclear

TOM MOHAUPT (*)

MARLEEN MOORE, Fletcher Allen Health Care (*)

JENNIFER OPILA, State of Colorado Radiation Program and OAS Board (*)

(*) Present via telephone

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

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

(1:05 p.m.)

MS. LOPAS: Hi everybody, and welcome to the kick off meeting of the Advanced Notice of Proposed Rulemaking for the NRC's potential changes to our radiation protection regulations in 10 CFR Part 20.

My name is Sarah, and I'm going to facilitate today's meeting. And I want to welcome everybody that's here in the room with us at the NRC headquarters.

And I also want to say hello to the folks that are on the phone. As Adrian, the operator, mentioned, you are in listen-only mode.

But after the NRC presentation, we'll be explaining how you'll be able to indicate to us that you would like to make a comment so you'll be able to fully participate in the discussion.

But for now, you're just in listen-only mode. Before I hand the meeting over to Cardelia and Don I am going to cover the agenda briefly and some short ground rules for today's meeting.

We're going to start out with an introduction on the proposed Part 20 Rulemaking by Cardelia. And then that will be followed by a presentation by Dr. Don Cool on the background to the

proposed rulemaking.

Following that we're then going to open the floor for discussions, so please hold your questions until after the NRC presentation.

For the folks that are here in the room, I'll just be inviting you to come up to the podium if you'd like to make a comment or ask a question.

For folks on the phone, like I said, we'll be going to you probably back and forth between folks in the room and folks on the phone.

We're prepared to go until 4:45 for that discussion, so I think there's plenty of time for a good discussion. About halfway through the meeting we're going to evaluate to see whether or not we need to take a little bathroom break.

But, of course, for folks here in the room the bathrooms are just right out here and to the left. Feel free to get up whenever you'd like.

Let's see. There are some handouts for folks in the room. I think you saw on the table on there we have the Federal Register notice for the ANPR, the Advanced Notice of Proposed Rulemaking.

There was the copy of the slides, and I believe there was a meeting feedback form out there. So that's if you have any feedback on today's meeting, how

we can improve on the future meetings because I think there's a couple of these in a row coming up.

So today's meeting's being transcribed by Charles over there up in the corner, and I think although the meeting is being transcribed, the NRC would encourage you, and I think Don is going to talk about this during his presentation that you should submit your comments in writing to us.

And I believe November 24th was the deadline for the comment submission. So Don is going to discuss that a little more during his presentation, and I believe Cardelia as well.

I also need to make a note that this meeting is being recorded. It's being videoed. So you are on video for those folks that are here in the room though you might not get on video unless you come up to the podium, just letting you know.

So for Charles to get a clean transcript, just note when you do make a comment to introduce yourself first. Please spell your name if it's a tricky name. Spell it out for us.

And speak clearly into your phone or clearly into the microphone, and that should help Charles out a lot. And I think that's it for now. I'm going to hand it over to Cardelia to start the

introduction.

MS. MAUPIN: Thank you, and I would like to say good afternoon and welcome you also. And thank you for coming out to participate with us. And we really would welcome your comments, written comments.

What we're here for, the basic purpose of this meeting is that as you know, for a number of years the NRC has been looking at revising/updating its radiation protection regulations in 10 CFR Part 20 to align with ICRP 103, which was published in 2007.

On July 25, 2014 of this year we published Advanced Notice of Proposed Rulemaking, and you should have obtained a copy. We had a copy for you at the door.

And what we're planning to do with that is that ANPR was not just developed in a vacuum. We had a lot of input on that ANPR.

We had the Organization of Agreement States Working Group. We had a working group with the Organization of Agreement States. We had NRR, NRO, NMSS, OGC, Research, Admin.

So we did not develop it in a vacuum. So we have placed that out for public comment, and once we get comments we're to take those comments and develop a Draft Regulatory Basis for potential revisions to 10 CFR Part 20.

And I want to emphasize draft because then that document would have to be submitted to the Commission for their final approval.

As you're aware, we have a 120-day comment period. As Sarah, thank you, mentioned we'll end on November 24th. And so we definitely invite you to provide your written comments.

We have another of other meetings coming up. Our second meeting/webinar will be on October the 2nd, and following the next, that one will focus on Issue 1, Alignment with the Methodology and Terminology with ICRP Publication 103, and Issue 2, Occupational Dose Limit for the Lens of the Eye and also the associated questions that were in the Federal Register Notice.

The third meeting will be on October 9th, and that particular meeting will focus in on Issue Number 3, Dose Limit to the Embryo/Fetus of a Declared, Pregnant Occupational Worker, and Issue 4, Individual Protection, ALARA planning and also the associated questions in the ANPR.

The fourth meeting will be October 16th. In that meeting we will start out with Issue Number 6. We're adjusting the schedule to basically accommodate the presenters.

And so we will start out with Issue Number

6, Reporting of Occupational Exposure. That one will be followed by metrication, units of radiation exposure and dose.

And then the final meeting we have planned will be on October 23rd, and basically the purpose of that meeting would be to discuss or further discuss any things that we did not get to during those previous meetings and also to discuss our path forward on the project.

All of these meetings will be held here at the NRC complex here in Rockville, and we have, all of the public announcements are on our public announcement notification system except for the last one.

Antoinette and I are going to get to that last one, but we have all the other public notifications there for you. So I am so glad you are here.

I do want to encourage you to provide us those written comments, and as we said, we will take those comments. It will greatly help us in developing a draft regulatory basis.

And in that ANPR you saw about six different issues we're looking at. And now I'm going to turn it over to Don who is going to get more into that.

DR. COOL: Thank you, Cardelia. So for those of you who are on the webinar and seeing the

slides, we're now going to start working our way through that set of slides.

Go ahead to second slide immediately. What I'm going to be trying to do today is provide all of you with a general overview of all of the issues and discussion and questions that are in the advanced notice.

Obviously that's a lot of material. I'm not going to go into an enormous amount of depth in each one of them but rather try to provide you the overall characterization of the issues so that we can start the discussion, start to look at particular things that you might be interested in.

As we move through each of the next several meetings, we'll be able to spend a little more time on each one of them as people bring things up.

So this is the first in the sequence to sort of get everyone on the same page, start the discussion, start to see some of the things that you might want to have a little more discussion on as we move through the set of public meetings and as you think about the comments that you want to develop.

Let's go to the next slide, Slide Number 3. Okay. So to step back even before the first date on this slide, 10 CFR Part 20, NRC Standards for Protection

Against Radiation, had been in place for many, many years, way back to the early days of the Atomic Energy Commission.

They have been modified any number of times, amendments, more amendments and more amendments. Completed in 1991 was a major revision of the rule.

A lot of you may not have been there. Some of us have been around long enough that we remember that revision.

That was done to bring NRC's standards into basic alignment with the International Commission on Radiological Protection, ICRP.

I'll try to spell out at least some of the acronyms for you. And their recommendations, which come out in 1977, and much of the supporting technical information for calculating doses in the body, which came out starting in 1980.

And as I said, that rule was published in 1991. The ICRP had just a few months prior to that in fact, published an updated set of recommendations.

The NRC chose not to try and respond directly to all of those recommendations at the time because the revision had been in process for quite awhile.

It was a significant change that people

needed some time to react to, and so at that point we deliberately decided we were going to wait.

We were going to get this into place. We would look through it and at some point start to evaluate whether some revisions were necessary to respond to those recommendations.

The staff, in fact, did that, going to the Commission in 2001 and telling the Commission yes, many countries in the world are moving to implement that set of recommendations.

It was ICRP's Publication 60. But the staff was also aware that the ICRP had already started some discussions for a possible further update of their recommendations.

And so we the NRC staff, in fact, suggested to the Commission that rather than starting a rulemaking process at that time, that we continued to monitor and work with the international community, various other groups, to understand what changes might be made in those recommendations and to defer any consideration of possible changes to our regulations until those came out in hopes that perhaps we wouldn't be in quite the same position we were in the previous time where we got essentially done and another set of recommendations came out, which were a fairly significant change.

At that point, of course, I don't think any of us realized that it would take ICRP some seven years to complete their process, which included three rounds of public consultation and a variety of other things.

So ICRP's recommendations, the latest set known as ICRP Publication 103, was actually released in late December of 2007. Printing copies eventually showed up in everybody's mailboxes who are subscribers to the Annals of the ICRP in March or so of 2008.

As the staff has committed to our commissioners, we started to immediately look at what had finally come out.

And in December of 2008 we went to the Commission with our initial set of recommendations, which can basically be summarized as there are a number of places where we think consideration of possible changes should be warranted.

And the first thing that needs to happen is some discussions with the wide variety of stakeholders on some of those issues and to start the development of the technical basis information that would be necessary to support any of those changes.

There's lots of information that has to underlie any of these possible changes, and none of that work had been started until that time.

The Commissioner asked us to defer any specific work for a regulatory basis. The Commission agreed with the staff recommendation, and since that time, we have been trying to engage as many different people as we could get to hold discussions with us on the possible changes.

We went to the Commission a second time in April of 2012. And then this time, as a result of those first sets of interactions, we provided the Commission with directional paths that we believed as the staff, should be pursued.

We wanted to make sure that the Commission was in alignment before we expended further resources to actually develop specific regulatory basis on the technical and the policy issues.

The Commission came back to us in December of that year and agreed and disagreed in part, sending us off on a pathway to specifically develop a regulatory basis for possible changes in a number of areas.

And it is that direction and the development of that regulatory basis, which this Advanced Notice of Proposed Rulemaking is the next major step up. If we can have the next slide.

So there are actually a number of areas of work that the staff is pursuing, some of which are in

parallel, some of which will have to be a little bit more sequential.

The first, the updating of the methodology and terminology, which is in fact, the first issue in this ANPR as well. Much of the technical calculation, how do you calculate doses?

How do you calculate the various movements of radioactive material in the body? Has a lot of technical detail and calculational methodologies that have changed over the years, been updated over the years and which, in fact, not only would underpin possible changes to 10 CFR Part 20 but all of the other regulations for radiation protection which are part of the NRC regulatory framework.

And we'll touch that again on the last bullet of the slide. So the second piece of that is the actual technical and policy issues for 10 CFR Part 20, which are the issues associated with this advanced notice.

In parallel with that, the Commission directed the staff to proceed to start to work on a regulatory basis for updating 10 CFR Part 50, Appendix I.

Those are the numeric guidelines for the design objectives to meeting ALARA for the effluents

from nuclear power reactors.

Those regulations have actually been in place since 1976 and were not updated at the time that Part 20 was updated in 1991.

So, in fact, the underlying methodology for that regulation is older than and different from the starting point for 10 CFR Part 20, which brings me to the fourth bullet, which we're called comporting changes because in fact there are a number of places, not just Part 50, Appendix I, where the underlying basis for the requirements goes back to the late 1950s early 1960s.

And the Commission, in fact, directed the staff to look at and bring up to date all of the NRC requirements to comport or conform. You could use several different words.

Different words have specific legal meaning as we go through a rulemaking process so that we bring our regulations back into a single, coherent pattern.

And we don't have, what in fact we have today, which is three different generations of recommendations and calculational methodologies out there for different people and different places in time to try and use.

So that is quite a challenge that the Commission has sent us off to. If we can go ahead and have the next slide.

So for the next number of minutes now what I'm going to do is work through the six major issues in the issues paper, give you some brief understanding and the questions that go along with these.

First, as I mentioned a bit ago, is the updated methodology and terminology. 10 CFR Part 20 today based on the 1977 recommendations uses effective dose equivalent, committed effective dose equivalent, what we call total effective dose equivalent to represent the sum of internal/external exposures in the body.

And the whole series of supporting calculations of annual limits of intake, effluent concentrations that are contained in Appendix B to Part 20, which are used as values that licensees can use for demonstrating compliance with the regulations.

Now, since that time the calculational methodologies have gone two rounds of revision, the one in 1990 significant in particular because it changed the number of organs and tissues that were considered in calculating the dose in the human body and also changing the methodology of considering the differences of the

effective different kinds of radiation.

The regulations today were based on quality factors. Those have now been retermed radiation waiting factors. The calculations have some subtle differences in them, which I'm not going to try to go into today.

But that resulted in a change in the term that was used to represent the fact that the underlying calculation, the factors that were being used, the numbers that were being used were changed.

So today the words that are used are effective dose, equivalent dose, rather than dose equivalent depending on how you translate it.

And if you were to translate it into Spanish or something else I think you would have an enormous degree of difficulty because of the similarity in the terms.

And in fact, the international communities had some rather interesting issues with that. That terminology did not change with ICRP's recommendations in 103 but obviously is different from that which we have in our regulatory requirements today.

So the Advanced Notice for Proposed Rulemaking lays out several areas where the staff is suggesting a directional change.

You will see the word proposal here and a number of other places. Please don't confuse this with this actually being a proposed rule where it's specific regulatory language.

You will not find a specific regulatory language 10 CFR 20 point dot dot dot dot change to read. We are still at a slightly more conceptual stage.

But in order to obtain good comments on the issues and provide the feedback that's necessary to develop the regulatory basis, we wanted to put a direction out for there to be specific comments on.

So the proposal in this particular case would be to realign the terminology that's used in the regulations, to use total effective dose, effective dose, committed effective does, to change to the new tissue weighting factors to reflect the sets of organs and tissues which are used today in the international recommendations.

To reflect the radiation weighting factors, which are reflected today in the international recommendations, in the definition sections of the regs.

To go through and redo and update all of the calculations and provide new values for all of those numbers in Appendix B, the pages and pages and pages of

tables with annual limits of intake, effluent concentration, sewer concentration numbers.

There are a number of little bits and pieces to that obviously. One of the more important and which we are specifically soliciting some questions on is the approach used to calculate the effluent concentration numbers.

Those numbers in the present regulation are based on a calculation, which was an adult. Those were, in fact, the only reference models that were available at the time throughout recommendations when the regulation was previously done.

Today we have a much better understanding. We have a much more sophisticated system, which includes modeling for newborns, three month olds, and one year olds and five year olds and ten years and 15 male and female and adult male and female.

And so, in fact, rather than taking a very sort of simplistic approach as had to be done previously, which was take the adult and just change the amount of time from 2000 hours of a working year to the 8000 plus hours for around the clock 24 hours a day, seven days a week and to reflect in, in some manner, that over the course of a period of time an individual could start out as a newborn and move through the various age

groups.

And so the staff has proposed that we consider to use an age- and gender-weighted average dose coefficient. We've provided some references to the methodology.

That, in fact, that methodology, in fact, has been previously developed and is currently being used by the Department of Energy.

The Department of Energy has a technical standard, which lays that out in the specific link to that document so that people can go and look at how that was done, is included in the Advanced Notice.

Part of what the staff would propose to do would be to update that approach to take the new tissue and radiation waiting factors, since the DOE standard is currently based on the 1990 ICRP recommendations as well as the most recent Census data for the United States.

So the numbers would be somewhat different from when we'd be updated. So that's a particular proposal which would apply a increased level of sophistication and what we believe could be a much clearer representation of the fact that we are not just adults.

We have all age groups that are available,

may live around, might be exposed to be facility. So if we can go to the next slide.

These are simply the questions that are currently in the Advanced Notice, the first one being the implications of the terminology.

While it sounds very simple to just change one set of words to another set of words, it's in fact much more complicated than that.

We recognize that because every time you change a word you have to change it in various places in the regulations in the guidance documents.

You probably have to change it and sorts of procedures and communication and training and a variety of other issues, so the staff is, in fact, looking for the implications and issues, the associated costs with that, mechanisms that could be employed to, perhaps, mitigate some of that, perhaps, by allowing additional time for changes to be brought in and otherwise so as to allow the terminology to be aligned but without imposing excessive one time costs just because the word happened to change.

So that also refers you to the second question on the appropriate time frame. The third one specifically refers to this calculational approach for members of the public in terms of the modeling that's

now available, vies, pros and cons, implications of using this sort of approach composite.

The fourth question actually opens up the possibility of whether or not staff should use a different dose legal as the compliance point calculation for effluence.

Now recognize that today the dose limit for members of the public at 1 millisievert or 100 millirem, that is not changing.

That is not something that the staff has proposed. The values in Appendix B for air and for water are each calculated to half of that.

And absent some particular driving force, the staff would likely continue with the existing approach of using each of those, but of course, we look for people's views as to whether that should be changed. And if so, why?

I would like to emphasize as we go through this that the staff really is looking for more than just a yes, no, do this or that.

What will be most helpful to us in developing a regulatory basis is the why, the implications, so that we can go and develop a good basis that's something more than somebody said we ought to do it this way.

So you have those sets of things that are out there. Let's move on to the next slide and to the second issue, the lens of the eye.

The Commission directed that we should continue the discussions with stakeholders with a possible reduction in that dose limit.

The dose limit today, 150 millisievert or 15 rem per year for the lens of the eye. New recommendations have substantially reduced the recommended dose level.

In light of the growing body of evidence that cataracts are induced at levels significantly lower than the several hundred rem of dose that was previously considered to be the threshold for such exposures.

The international recommendation, in fact, now is numerically for the lens dose value to be the same numbers as for the effective dose number, as in 20 millisieverts or 2 rem averaged over any five year period with a maximum of 50 millisieverts or 5 rem in any particular year.

For purposes of obtaining comment, the staff's proposal is a consideration of reducing from the 150 millisievert/15 rem level to a 50 millisievert/5 rem level for lens dose.

So the next slide has questions. So obviously what did people think about this, but that's a nice way of saying in general terms we need lots of additional information on this dialogue.

So how does this help us, and is in fact it even appropriate given the current scientific information available?

This is an area where there is ongoing debate within the scientific community, within the various protection communities with regards to the actual induction of the effect and the implication of those effects for human health and, therefore, the corresponding level of protection that ought to be afforded.

So the first two questions really ask for views of all the various stakeholder groups and organizations.

On the scientific information that is available that support changes or perhaps, in your view, does not support changes as well as views with regards to protection for cataracts as the end point, which is the recommendation, versus the end point of cancer fatalities, years of life lost and the several other things that are part of the calculation of harm or detriment for which the effective dose limit

calculations are based.

So this is an area where we are asking for not just a yes/no, but a why and views on the associated science and the implications because this does have not just technical ramifications but a number of policy ramifications.

The third question has to do with the mechanisms to keep that cumulative exposure below a half a gray, which is the presumed threshold now for possible induction of cataracts.

The next page continues with the questions. There's more questions in this particular area. Methodologies that would be allowed for the measurement and assessment of doses to the lens of the eye.

With the current regulations where there's a substantial difference between the lens of the eye value and the total effective dose equivalent in the current regulation, there have been essentially no instances in which the lens dose equivalent has been approached because of control mechanisms that were in place for exposures overall to the body.

But if you change the proposed limit to a value which is numerically the same as the value for the whole body, then the number of situations in which there might be perhaps shielding for parts of the body or a

vary asymmetric distribution in the exposure a source overhead or a source directly in front of you at head level, could result in a dose to the lens of the eye which would be greater than the dose to the entire body.

And so whereas previously general monitoring has in general been quite sufficient for demonstrating compliance, there may be a need for more specific monitoring assessment techniques, methodology for recording and the record keeping.

It's Question 5. The operational impacts, if you change the level and you start to meet these additional specifications and recording and otherwise there are likely to be a number of operational areas.

If in general you have very uniform fields there might be no changes necessary. For some industry types there could be very significant changes.

And we recognize that there are some uses of radiation and radioactive material, particularly those regulated by the states for various x-ray and machine produced uses where this may be particularly important.

And we wish to obtain comments on those areas. So let's move on to the next slide and the third area. This would be the dose limit to the embryo/fetus of a declared pregnant occupational individual.

Again, the Commission asked us to continue the discussions. Today the regulatory requirement is to limit the exposure to the embryo/fetus to a half a rem over the entire gestation period, which means that when an individual declares her pregnancy to her employer, there has to be a calculation to look and see what exposure has already been incurred to the embryo/fetus and requirements and positions and activities put in place to limit the exposure during the remaining part of the gestation period to keep it less than that 500 millirem.

The proposal to align this dose requirement with all of the other dose requirements that are related to members of the public is to reduce it to 1 millisievert.

Now there are some interesting implications, again, with this particular issue because in fact the international recommendation, we can go ahead to the questions on the next slide.

This is Slide 11 for those of you who are following along. There are some interesting implications. This is the only regulatory requirement that I'm aware of that, in fact, is completely dependent on an individual's decision.

The individual has the decision to choose

to declare or not declare her pregnancy and therefore invoke these regulatory requirements.

There is very clear statutory law court findings in this area. We are not suggesting in any way that that approach be modified.

But of course if you change the total amount that the embryo/fetus is allowed to have, then there are potential implications to various operational activities, again, very much dependent on the kind of licensed activity that may be conducted.

So several questions this first slide here, Question 1, the operational impacts, the benefits of applying it over the entire gestation period, which is the way the NRC regulation is crafted today or only to the period after declaration, which in fact, it could be argued is the only period over which the licensee or user of the radioactive material or radiation has any real control after the fact.

The international recommendations, in fact, are now written as a 1 millisievert or a 100 millirem limit after the declaration or notification of the individual's pregnancy.

So is that difference in the approach and that has very significant potential differences in the way that regulation would be applied and perhaps the

operational impacts that would be associated with that.

Again, you have issues associated with the record keeping and keeping all of the information that's necessary to demonstrate compliance. If we can go ahead to the next slide, Questions 4 and 5.

This is one of the places where the change to the regulation may pose some implications for the technology for detection that is routinely used.

If in fact you take the limit and you assume that the individual were to declare on Day 1, if we're to in fact know that, then you'd be dividing that by nine, so your monthly rate if you assumed a uniform rate of exposure would only be 11, 12 millirem per month.

That, in fact, starts to approach the minimum detection level on a lot of the routine dosimetry that's used if you're pulling it on a monthly basis.

So there are some issues, and the staff is interested in the implications on the dosimetry approaches that would be necessary to do this.

Obviously if the recommendation were post-declaration the exact same issue might apply, or it might not be quite so such a low level depending on when the individual chooses to declare.

I'm going to repeat again that our

proposals here do not in any way change the starting point, which is an individual choosing to declare to her operating management.

And then, of course, we would like some real data. You're going well that's kind of an interesting question.

In fact, you don't have a huge amount of this, and the NRC has not specifically in the past asked licensees reporting doses to pull this out as a separate piece of information for routine reporting.

So, in fact, we have rather limited data on the actual experience in various licensed categories on this particular proposal, the degree of difficulty, the actual exposures that are being seen, whether in fact this change in number would be a change which would align the policy.

And, in fact, through operational practice would hardly change at all because we are aware that many licensees choose to act in a very conservative manner.

And when the individual declares, they are pulled from essentially all work with radiation and radioactive materials and provided other opportunities so as to eliminate the possibility of exposures.

So we're interested in the information there. This is, again, one of those places where we

really would like some information to support the conclusions that, and the suggestions that are made in the comments to us.

Let's go ahead to the next slide and the next issue, which is the individual protection ALARA requirement.

The Commission directed that the staff should leave the overall effective dose limit at the 50 millisievert, 5 rem level.

Having said that, the Commission also recognized that the underlying goal of both the ICRP's recommendations and the United States National Council on Radiation Protection and Measurement recommendations was to set up a system such that an individual during their occupational lifetime would not be in a position to exceed more than roughly 100 rem or 1 sievert of total exposure.

And, in fact, if you operate at the dose limit, you know, very few people do that most of the time. But if you operated at that dose limit you could easily get to values which are greater than that.

If you look at the NRC's occupational exposure database for licensees who do report to us, you will find individuals who have accumulated exposures greater than 100 rem in a year.

So the Commission said leave the dose limit at the 50 millisievert level but to continue discussions on what might be some alternative approaches to try and deal with individual protection when the individuals are within the regulatory limit but may be near that limit over multiple years and therefore pose a potential issue of starting to approach the underlying desired goal of protection to avoid a longer term cumulative exposure.

So this gets to be a little bit of a more complex issue and is in fact not an issue which the staff had previously engaged a lot of discussion on.

The objective obviously would be to try and have requirements and guidance that would in some way address the cumulative exposures can provide some mechanism that there could be some potentially progressive or other types of restrictions applied in individuals started to accumulate relatively high exposures.

Classically, the protection system has operated on simply an annual basis because it's very straightforward to apply it, and in fact, the current set of requirements do not require going back and looking at previous years.

Each year starts a fresh year and a fresh

cycle, so we in fact have not been requiring ever since the revision in 1991 for licensees to keep a complete cumulative record of all of the exposure of each of their individuals.

So if we can go ahead and have the next slide. There are several possible components that the staff is looking at and trying to obtain comment on.

The first is the requirement for ALARA planning, and those of you familiar with the regulations immediately the question I'm sure pops in your mind, but isn't ALARA required.

And the answer is yes. The regulations require that licensees use procedures and engineering controls to reduce exposures to as low as reasonably achievable.

The regulation does not actually require any planning or any documentation or any ongoing review other than the general requirement associated with a licensee having a radiation protection program and reviewing that program.

So based on a number of interactions that we've had over the last few years, where in fact the staff has been told that there isn't always a high degree of planning depending on the kind of use that's been doing, in fact a very wide range from very detailed

consistent planning to go off and do it.

The staff is proposing the consideration that might add a requirement for planning for ALARA to possibly add a requirement that could look at cumulative exposure and perhaps to add to the requirements that a licensee establish administrative control levels.

It's part of the radiation protection program. The staff has chosen that particular proposed because it is in fact part of the existing U.S. Federal Guidance for Occupational Exposure, which was published in 1988, which strongly suggested that users have administrative control levels less than those limits for purposes of ALARA planning and dose control.

That was not incorporated into the last revision of the regulations. So the third component, which is at the bottom of this page, is to look at potential situations where an individual may have exposure at more than one facility at the same time.

We know that there may be situations. Well, let me rephrase that I guess. We have had discussions with individuals who have said that you have people who are working at multiple licensees perhaps at the same time.

The medical community is often cited where practice privileges, physicians and otherwise may be at

multiple institutions, may be in multiple if different jurisdictions.

If you consider just here in the Washington, D.C. area it takes you almost no time at all to go from Virginia to the District of Columbia to the state of Maryland, which are three different regulatory jurisdictions each one of which would have individual requirements, three different hospitals.

At this moment, there is no requirement that explicitly has some mechanism to make sure that an individual isn't being exposed up to the dose limit over there in Virginia and somewhere in D.C. and somewhere here in the state of Maryland.

So let's go ahead to the next slide, spend just a moment or two on possible acceptable approaches. The NRC staff is in fact in this ANPR not suggesting that the regulation would require any particular numeric value for an administrative control level.

The staff does not believe that there is a one size fits all that would be universally applicable to all of the different kinds of uses and approaches, which might be used by various license communities.

So what the staff is approaching is that there could be several values which a licensee could establish as part of their own program that might be able

to address this.

We've listed several here, administrative control at 20 millisieverts per year. Or if they wish to keep control, to keep a look at the cumulative exposures to use the 20 millisievert with a maximum of 50 millisieverts any one year, which of course is the dose limit in the regulations.

Or the approach which is actually in the NCRP's recommendations of keeping track of the cumulative exposure by looking at the individual's age in years multiplied by 10 millisieverts.

Or in fact a possible option to just keep track of the individual's cumulative exposure, and so long as they didn't get up to 50 rem, 75 rem, we haven't specified a number, there wouldn't be any particular issue.

And only at that point would the licensee if they had a cumulative exposure at that level then place themselves in obligation to oppose some restriction.

Again, the proposal here is that the licensees would establish the level. The licensees would establish the particular approaches that they would use.

So what would be inspectable, at least in

the staff's way of thinking at this point, would be whether or not such requirements had been established by the licensee in their facility, not the question of whether it was a particular numeric number and then whether or not they in fact met their own requirements whether if they exceeded the value they then did what they said they were going to do to make some further examinations.

So let's go on to the questions. So these track the discussions that I've had I'm not going to spend a huge amount of time walking through it.

Obviously the implications of requiring ALARA planning. As I said, some licensees have incredibly detailed ALARA planning, step by step, operation by operation with dose requirements, targets and a variety of other things.

Other kinds of facilities don't nearly have these kinds of activities, particular things such as industrial radiography.

A number of the areas in medical exposures, physicians and nurses don't have this sort of planning to look at. And what are the implications of requiring that?

What kind of regulatory language might be applied to actually implement this? Remember I said a

little bit ago that this doesn't have a specific proposed rule text.

So in fact what we're looking for here is if this were to be placed in the regulation how would you suggest that be written and the implications of writing it in that particular way because there are several possible formulations.

Questions with regards to the methodology of requiring licensees to have administrative control level, how that would apply in various categories, the degrees to which different approaches that a licensee might adopt would have implications on their program.

Obviously depending on the approach the licensee chose to use them might be requirements that they would have to have for themselves in order to keep track of cumulative exposures over time.

Let's go on to the next slide. The different options to address their programs, other mechanisms, we do not want to rule out that someone out there may have a very creative idea that we haven't thought about that would allow this to be addressed in some other manner.

We would very much like to hear from you on that. The implications of a possible requirement to address concurrent exposure, how you would write that

and what the implications would be.

And if I can put a little sidebar, data and information that may be available to the extent to which that is actually occurring out there, since again, we do not have a lot of that information available.

It's currently not part of the requirements and not part of information that is reported to us.

Again, the last question particularly looks at and encourages agreement states and agreement state licensees to particularly look at these issues, including the implications that could occur for the non-materials uses.

So the x-ray and other machine-produced radiation, which is only regulated by the state, but which we clearly recognize that if you apply a regulation, and a regulation of the state applies to the hospital, it's going to have to apply to all of the uses, both materials and machine-produced radiation.

You don't have two different programs, and obviously you can't distinguish them. If I hold up a dosimeter I hold up a meter between where that particular radiation came from.

If we can go ahead to the next issue, the issue of metrication to traditional units versus the SI units Systeme International uses.

The Commission disapproved eliminating traditional units. And you're saying well, that's kind of an interesting thing.

The staff in fact didn't suggest that we would eliminate them, but the Commission was in fact reacting to the fact that the health physics society has a position statement which says the traditional units should simply be eliminated.

And we should simply use the newer set of units. The Commission disapproved that and the staff consideration and rather stated that the staff should move forward keeping both the traditional and the SI units in place.

That puts us in the position of implementing as currently written, the Commission's policy state on metrication which requires that regulations and guidance documents be written with the SI units with the traditional units in parentheses.

Part 20 today is just the reverse of that. They're written in traditional units with the SI units in parentheses. The revisions of the regulations occurred before the metrication policy was put in place.

So our proposal is to implement the Commission's policy statement. If we could move on to the questions. These questions get to be a little bit

longer.

So I'm not going to try and read it all to you. But what are the implications of reversing the order of the units, putting the SI units first, traditional units in parenthesis?

Does that cause any burdens or hardship or implications of simply swapping the order? But then it becomes more complicated if you go to the next slide.

Because in fact the regulations today require licensees to keep their records and provide their reports in the traditional units of dose.

So if you switch the order of the units, should we allow licensees to keep their records in the SI units or traditional units or both?

What are the implications of doing that? And if you're going to do that do you allow there to be reporting?

By the way, for completeness I should note that the regulation, the first part of that regulation requires that you keep the records and reports in traditional units.

The second part of it requires that for all the things related to transportation, you must use the SI units.

So there is a bit of schizophrenia today

within the regulations based on when they were put in place and dealing with international harmonization. The rest of the world in fact all operates on the SI system of units.

So the third question, very interesting question, which is a bit more than just a formatting issue, if you will, which is, for the appendices to Part 20, do you make all those values in the SI values, as in bequerels per cubic meter?

Or do you use the traditional units, right now microcuries per milliliter? Do you put in both sets of units and make the table twice the size?

But in fact it's a bit more complicated than that because of the fact the conversion between the SI units and the traditional units for dose is a nice integer value.

They're a factor of 100 between rems and sieverts. The conversions between the curie and bequerel is not an integer value.

So in fact even at several significant figures to write out the number they will not be exactly the same.

And in fact the staff has already had to deal in other portions of the regulation with the question of which set of units forms the actual

regulatory requirement, and which is provided as a comparison version.

The ANRP notes that the staff had to look at this in 10 CFR Part 37 dealing with source security.

And the staff in that regulation chose to use the SI value as the regulatory requirement and then provided the traditional units as a figure of merit with a number of significant figures so that there was not a substantial difference between the numbers for regulatory convenience.

So the staff is asking the question of whether that same approach should be used here and how to ensure stability, how to ensure communication and those variety of other things.

Let's move on to the next slide. I'm now on 21, the reporting of occupational exposure. Here the Commission directed the staff to improve reporting both in terms of work between the NRC and Agreement States and the categories of licensees that are currently required to report.

Today the NRC requires seven categories of licensees to provide reports by individual occupational exposure.

There are a number of categories, including all of the categories licensed in medical use, 10 CFR

Part 35, and a number of other academic/industrial categories, which are not today required to report.

In addition to that, although that is a requirement on an NRC licensee, the compatibility designation currently with the corresponding requirements in the agreement states is a category which makes the particular requirement optional for the states.

And the majority of the states have not chosen to require the reporting of occupational exposure.

That has resulting in the situation where even for a category like industrial radiography, which is listed within the NRC requirements, the majority of the exposures in that community of practice, because more than 80 percent of the licensees are in Agreement States, we do not have very much data there except for some voluntary reporting that has been provided to us.

So we lack some significant information and certainly that makes it very difficult to share information across jurisdictions and across issues.

So the proposal the staff is looking at is to consider adding categories of use such as medical uses licensed under 10 CFR Part 35, to potentially consider changes to the compatibility and to try and

explore mechanisms that would facilitate the sharing of information across the national enterprise between various states and the NRC so that we could all be able to benefit from that information in terms of looking at licensee's use and compliance.

So the questions, going on to Slide 22. So very nice, add criteria. Oh, okay. What sort of categories? What kind of criteria do you want to do?

In fact, it doesn't necessarily make sense to simply say all medical use because medical use ranges from very tiny quantities of radioactive materials which are gone in half-lives of minutes to very large sources which are implanted in the body in teletherapy for external radiation.

So there's a huge variety of potential exposures that would be experienced within the medical community by occupational individuals.

So what sorts of criteria perhaps should be used to help to refine that. The staff is not saying just everybody report.

We're in fact looking for what is the logical groups of individuals that have potentials for significant occupational exposures.

We have been told time and again over the last few years that there are significant occupational

exposures in the medical community.

We would like to try and capture those in the correct way. So what would be the benefits of trying to collect those into a single database and to be just a little bit satiric about it, how are you going to do that?

How do you get everybody to be able to have information in a single database that can be shared with each other across an enterprise which involves many Agreement States, four NRC regions, a whole variety of uses that is safely protected in terms of individuals' identifying information and otherwise yet allows various regulatory jurisdictions to be able to actually grab that information when they need?

So let's go on to the next slide. Should there be a change in the compatibility so that the Agreement States are required to have reporting at some level.

And if so, what kind of compatibility should be adopted. There at various levels of compatibility.

Do we try to consider, or should we consider expanding this sort one at a time? Pick the ones where the greatest exposures are, and rather than saying everybody suddenly has to report, we pick a few at a time

over the next number of years so that we don't have this sudden large step function in the required exposures.

And otherwise so that the database and practices and systems can be worked. The bugs can be worked out, and otherwise if so, how would you do that?

What are the implications associated with that? And of course what are the implications and costs for us, for the states, for licensees, the record keeping and reporting systems, the systems that are used today, many of which of course are computerized?

And if you can convince the computers to talk to each other, not necessarily an easy thing, then it's perhaps a fairly simple and straightforward process.

For many small licensees it may not be computerized, and it may be more difficult. What are the implications that are associated with that?

We can go ahead to the next slide. That completes the six significant issues. There are a small set of questions that the staff wants to specifically look at in terms of cumulative effects of regulation.

We recognize that there are a lot of things that are going on at any one particular time, which may have impacts on the same groups of licensees.

We refer to that as the cumulative effect of the regulations. Some of that might be regulation. Some of that might be guidance that has been imposed. Some of that might be other requirements that are being considered or having to be worked on that all impact on a particular licensee at a given time.

So the staff is asking the standard set of questions on cumulative effects of regulation. In terms of those potential challenges, what might be appropriate in terms of looking at possible effective dates, do spreading it out or otherwise have different implications?

Is it better to just do it, or is it better to have the, this probably doesn't sound right, but they have the pain expanded over a period of time and do it in smaller chunks as you're able to work on things and therefore be able to make changes when you would already be making changes for some other reasons?

What can be done to address the challenges? The next slide. What are the other actions that can influence the implementation?

We know that there are changes going on in source security. There are changes that are being discussed in medical.

So depending on the kind of licensed use

there are a variety of things that are going on, each of which have their own particular time lines.

Are there any intended or unintended consequences that are associated with this? And the cost and benefits to the extent that such information is available now.

We recognize that we are asking this question at a stage before when we normally do because normally you would ask this sort of question when there is a particular language that has been proposed with a particular possible time frame of which it would be implemented.

We haven't actually given you a specific language change yet, nor can we give you a specific time line other than the reality that it's still going to be a while.

But we are looking to try and understand, to the extent that you can provide us with the information, on the costs and benefits of the timing.

Is a year or two different from three or four years? Does Part 50 and Part 20 happening at the same time the best approach or phased in the medical areas and the other areas because cumulative effects of rulemaking is not a reactor requirement?

That's a requirement that applies across

all licensees. So if we can go to the next slide, and we are pretty much all wrapped up here, those of you who are hoping that Donald will stop talking before very long.

Just to reiterate, we published the Advanced Notice. It's out there. Copies were available on the table. They're available on the website.

The link's available. We are looking for your comments. We want your comments. We thank you for your comments. We want information, and we just want something more than yes, no, or whatever it is.

We need specific information, answers to the questions to help us actually construct a regulatory basis.

The bottom part of this slide has the variety of ways which are in the advanced notice for providing us with comments. We'll say yes, there is a recording being made of this. We are transcribing it.

We obviously will pay attention to everything that is said in these meetings, but we very much would like you to submit your comments on the record to reflect the discussions here, something that someone else may say which gets you thinking about another idea.

And submit all that information so that we

have it all available to develop our regulatory basis. So next step.

As Cardelia mentioned, this is the first of a set of meetings. The next several meetings we'll go into each of these issues in a little bit more detail and entertain a broader discussion as stakeholders might wish to have on these various issues.

The staff will take all of this, the comments that come out of this advanced notice, and we'll be working to develop a draft regulatory basis.

As has been the staff practice in the development of regulations, the staff will be putting out a draft regulatory basis for public comment.

I do not want to presuppose that I am so smart as to tell you exactly when that may take place. It will be awhile because a number of the things that are necessary to do all these calculations obviously take some time.

But there will be additional opportunities for comment. When the staff has received the comment and worked through that process on the draft regulatory basis, the staff will take that regulatory basis to the Commission for Commission approval of the regulatory basis.

It is only with the Commission's approval

of the regulatory basis that the staff would actually develop a proposed rule, which then obviously would be made available for public comment and the rulemaking process, which is more typically employed and which you're familiar with.

So we are in an information gathering stage. We are trying to get as much input into this process as possible. And with that, I've finished the discussion, and I would turn to Sarah to start the questions for clarification, dialogue and information. Thank you very much.

MS. LOPAS: Thanks, Don. All right, we're going to start with anybody in the room. If anybody in the room would like to come up and make a comment, just go ahead and raise your hand.

For folks on the phone, I'm going to log into my computer here, so I can see who's on the line. Last I checked, there are about 35 of you.

So if anybody on the phone would like to make a comment, what you're going to do is you're going to press *1 on your phone, on your keypad of your phone.

That's *1, and once I log in I'll be able to see who would like to make a comment. And we'll open up your phone lines, so just hang tight while I log in.

Anybody in the room? Any takers? All

right, phone people press *1. Hang on. Okay. I'm just logging into my meeting view, so I can see who's online.

Okay. All right, Adrian can we hear from Jennifer Opila please? And if I'm pronouncing that wrong, Jennifer, I apologize and just go ahead and introduce yourself and get right started.

MS. OPILA: Thank you. This is Jennifer Opila, O-P-I-L-A. I'm with the State of Colorado Radiation Program and the OAS Board.

I was just wondering if these slides are going to be available anywhere where we could send them out to the Agreement States? I think they're a really good overview of the issues.

DR. COOL: The answer is yes, definitely. A version of this set is already available on our public website. We'll be taking this and making this particular set available on the website within the next few days so that this particular set is available.

MS. LOPAS: Jennifer, any other questions?

MS. OPILA: No, thank you. That was it.

MS. LOPAS: Okay. Next, Adrian can we hear from Marleen Moore?

OPERATOR: Ms. Moore, your line is open?

MS. MOORE: Are you able to hear me?

MS. LOPAS: We are. Go ahead.

MS. MOORE: Okay. Marleen Moore, I am the Radiation Safety Officer at Fletcher Allen, which is a hospital in Burlington, Vermont and as such oversee pregnant women who require monitoring.

In particular, I'm concerned about the nuclear medicine technologists because I have had situations where they do continue to want to work, do continue to want to be able to take call, are very conscientious about minimizing their exposures and yet may exceed the limits that are being proposed.

However, those do not account for the fact, from what I can see, for the fact that the fetus is at some depth and so any radiation will have passed through some tissue getting to it.

And so I'm just wondering how one actually comes up with a real number or some pseudo-number going to be addressed.

DR. COOL: Okay. Thank you. That's actually a very good question. Obviously the very conservative assumption is just to take the deep dose equivalent without any shielding or otherwise and apply that to embryo fetus.

Additional specificity can be done, and in fact, there are a variety of ways to do that. For your

nuclear medical technologists, depending on the kinds of isotope their using, shielding or lead aprons may or may not have any significant effect on the penetration from those materials.

So it may be different depending on the kind of uses that they have. We've heard a similar issue for the technologists who are particularly working with the PET targets coming off of the accelerator.

And so there are opportunities to do a more specific calculation, and I would in fact ask you to take that question and turn it into in our area we think these would be the implications.

These would be the groups of individuals and exposures that we think might happen and how that would affect your particular program so that we can build that into our consideration of a regulatory basis.

MS. MOORE: Thank you.

DR. COOL: Thank you, Marleen. And for folks on the phone, just press *1 if you have a question. So we'll hang out on the phone for a little bit, *1. Anybody in the room? Silence here in the room.

DR. COOL: Does that mean I put them to sleep, Sarah?

MS. LOPAS: Maybe, Don. Maybe. You can come down to the podium here and just introduce

yourself.

MR. BLAND: Hi Don. This is Stewart Bland, Chesapeake Nuclear Services. If I look at the NRC regulations and I do somewhat of a comparison on an international standpoint, I find that NRC is very prescriptive in certain aspects and a lot of detail.

One of the examples I'll use are all the tables in the appendix where we have ALIs and DACs and other methods. I agree with the need for providing simple methods for compliance.

However, I think a lot of these details can be relegated to regulatory guidance such that they facilitate changes as technologies and applications and other methods become available for improvements in dosimetry and applications rather than being bound by prescriptive methods that therefore limit specific applications to different industries and situations.

DR. COOL: Thank you, Stewart. You've raised an issue which is a good issue, for which there's been a bit of discussion and for which I want to make a couple of points and then do as I did with Marleen a bit ago and ask as you think about providing comments to offer some reflection about how to do that.

First, to note that in terms of compliance with Part 20, the tables are a way to demonstrate

compliance. The regulations also allow for more specific calculations which get into more detail and more specifics.

So that's one approach. I would also note, however, that those values are used by other portions of the regulation as a way in which to invoke certain requirements, such as some 1x or 5x of that value required for a reporting of a certain event or taking certain actions.

The staff has, in fact, thought about on several occasions could we just move that to a guidance document. Quite frankly, there are a lot of us who would probably like to do that.

But if that's to be done, then a mechanism has to be made to find cross-references to these other regulations and actions for which those are used and for which they then become regulatory requirements.

And you can't draw, a regulation cannot draw from a guidance document for the basis of their action. So at this moment the staff has not proposed to move the document to guidance.

Although, we certainly understand the implications of that. I would encourage you to think about and offer any suggestions on how we might go about doing that in a systematic manner that allows the

regulation to be clear, for licensees to clearly understand when that cross-reference would or would not take effect if in fact a proposal were put on the table to move all of those materials to a guidance or some other document.

MS. MAUPIN: The only other thing I would add, and I don't think we have any lawyers in the room, is that legally binding. Whatever we do it has to be legally binding and enforceable.

So our guidance is not legally binding. It's a suggestion, so unless there is a tie-down in a license document or something, then you can get to an actual guidance being a legally binding document. That's one of the issues.

MS. LOPAS: Okay. Next, can we hear, Adrian can we go to the phones and hear from Jennifer McAllister, please?

MR. BRODERICK: Yes. This is actually Mike Broderick from Oklahoma DEQ.

MS. LOPAS: Okay.

MR. BRODERICK: I heard presentations on this at OAS and CRCPD meetings in past years. The main thing that is stuck in my mind, and I think now I may have oversimplified was that this was going to change the occupational dose limit for workers from 5 rem to

2 rem.

In the discussion today, the only kind of allusion to that I saw was something in the ALARA planning. I'm wondering did I misunderstand? Did I oversimplify on the 5 rem or 2 rem?

And could you clarify on the ALARA planning? Is that 2 rem per year a hard number, or is, could you explain that a little more?

DR. COOL: Sure, Mike. No, you didn't misunderstand. The Commission directed that the dose limit not change.

MR. BRODERICK: Oh, okay. I missed that.

DR. COOL: Yes, so for purposes at this time the occupational overall total effective dose equivalent, total effective dose in the new proposed terminology, would still be the 5 rem, 50 millisievert.

So the question then became that the Commission asked us to do was to look at alternatives in mechanisms to try and deal with potential for individuals receiving exposure close to the limits over many years.

The proposal in the advanced notice related to establishing an administrative control level and various options for numeric values are not hard values.

The proposal would be that a licensee would

have to establish some type of administrative control level, and the actions that that licensee would take if that administrative control level were to be exceeded.

The staff is not suggesting at this moment that the regulation would contain a single number that all licensees would have to use.

That in fact licensees could look at their particular operations and activities and select an approach which would best work within their system.

Now certainly a 2 rem value is one possibility. But the staff is not saying that is the only possibility. And in fact the staff proposal would not suggest that number appear in the regulation.

MS. LOPAS: Do you have any follow up questions, Mike?

MR. BRODERICK: No, that covered it. Thank you very much.

MS. LOPAS: Okay. Anybody in the room? Okay. We're going to take the person in the room and then next up on the phone we'll have Victor Diaz and Tom Mohaupt. So hang tight, just one person in the room.

MS. ANDERSON: Nice presentation, Don. Ellen Anderson from the Nuclear Energy Institute. Don, we just have one question having to do with one of the questions in the ANPR.

We're just looking for some clarification. It has to do with in the individual protection or ALARA questions.

The question is Question 4-4, and that is should licensees be allowed to establish different ACLs, or Administrative Control Levels, for different groups of individuals and the basis for that.

So the question is are you asking for different ACLs for different people within the same facility who would perform different roles, such as a maintenance person or operations or whatever.

Or are you looking for something as a response having to do with different groups of individuals, meaning different facilities, different communities of licensees?

DR. COOL: Okay. Thank you, Ellen. That's actually a good question, and the answer is potentially both.

For purposes of asking this question, the staff is entertaining the possibility that different types of uses, categories of licensees, might as a group wish to use some similar number across their various enterprises.

But the staff also envisions that it might be possible, perhaps even advantageous to a particular

licensee to have the individuals who work at that facility operate under different administrative control levels.

And let me give you an example. I'll use a medical example. So a hospital may have a number of different categories of use, 100, 200, 300 and 400.

For people who are not familiar with medical, different levels of diagnostic and therapeutic activities.

Many of their individuals, employees, nurses, technicians, physicians, may be in circumstances where they have very little chance of getting anywhere close to the dose limits.

And for simplicity purposes, that kind of licensee might choose to apply to them a straight 2 rem per year or some other very simple approach which didn't require any additional record keeping or otherwise.

But to use for a category of individuals such as interventional radiologists or cardiologists, for example, for licensees in the state using the machine-produced radiation, for which it is known that they approach the dose limits every single year.

So that the added burden of record keeping and otherwise would only apply to a limited set where it was actually necessary because it seems to the staff

at this point that we should entertain the possibility that licensees only would have to apply more burdensome requirements for the individuals that they have for which it's necessary in order to achieve the outcome.

But we also recognize that when you let licensees do that, you have a more complicated system for them to implement and for the regulatory to inspect.

So we're looking for views on does that make sense. Does the example that I gave make sense? And what are the implications for all of us in order to have a reasonable system that we don't all go crazy on.

MS. ANDERSON: Okay. Thank you.

MS. LOPAS: Okay. Adrian, can we hear from Victor Diaz, please?

MR. DIAZ: Good afternoon. This is Victor Diaz. I'm not sure if you can hear me, but --

MS. LOPAS: We can hear you.

MR. DIAZ: -- my question was answered when referring to the medical staff other than the technologists or the doctors who are dealing directly with patients who have received, as was indicated, a variety of medical treatment, I-131s.

But based on PETs, for example, and broad-scope licensees that they're dealing with young children.

And you have a nurse who might be pregnant, but the doctor, or excuse me, as Don was explaining the process and the complexity that can be associated, I believe I got my answer. Thank you.

MS. LOPAS: Okay.

DR. COOL: Very good.

MS. LOPAS: That's good. All right, Adrian, next can we hear from Tom Mohaupt? And I'm probably pronouncing that wrong, Tom. I'm sorry.

MR. MOHAUPT: No, you're pronouncing my name correctly.

MS. LOPAS: Good.

MR. MOHAUPT: So my question, actually I have no question. I have a comment regarding quality factors for protons and neutrons.

The quality factor in 10 CFR 20 is much higher for protons than it is in ICRP 103 and ICRP 60. And also, the neutron quality factors for let's just take one meV and 10 CFR 20 is 11, whereas in ICRP 103 it's 20.6.

And so I see consequences there. One perhaps in space radiation for the protons, and I don't see quite so much potential impact with proton therapy, mainly because in therapy they apply RBE rather than quality factors for patient doses.

But also for neutrons I see an impact with dosimetry and which application is applied and that we're going to have to indicate which methodology was used for past and future comparisons.

DR. COOL: Thank you for the observation. You're quite correct. I'd ask you, in fact, to elaborate as you submit the comment on some of those issues.

But you have identified one of the issues. When you move to the new set, some of the numbers do change, and there are implications.

This would apply to public and occupational protection. We're not suggesting that these would necessarily be any requirement for a medical facility that, but to them be using in terms of the way that they might calculate or provide information in patient treatment and reporting to those individuals in terms of their actual individual treatment exposures.

MS. LOPAS: Okay. Tom, anything else to add?

MR. MOHAUPT: No. Thanks.

MS. LOPAS: All right, folks on the phone press *1 if you have a comment or a question. Anybody in the room, any other questions or comments in the room? Silence again.

So folks on the phone, speak up now. We'll hang out for a little bit, but if we go for very long we might, I don't know. Don, when do you want to wrap up? How long do you want to hang out?

DR. COOL: Give them a couple minutes.

MS. LOPAS: Sure.

DR. COOL: But if they're done, there's no reason to prolong the discussions. But we want to provide everyone the opportunity to ask questions now.

As I said, over the next few weeks will be looking at each of the issues, so with this initial overview you can go back and start thinking.

And then we can engage on some of them after you've had a week because inevitably what will happen is about half an hour after this particular meeting ends you go oh, I should have asked about, okay.

Write that down because each of these issues will come up again in one of the next couple of weeks. And start writing it down so that you can send in the comment so that we have it on the record and can help to develop the regulatory basis. Okay. I've stalled for a minute.

MS. LOPAS: Actually, I have a stalling question, and I think I missed this when you explained before when somebody asked how do they get the slides.

So is it the website that's up on, up top there where folks can get kind of a copy of the ANPR and the slides? Where can folks, for the folks that are online right now and on the phone, where can get some of these materials?

DR. COOL: Correct. There's actually a couple ways to get to it. The NRC system has our agency document management system, nicknamed ADAMS, which I'm sure you all know and love.

So the step in the process first, of course, is to actually get them publically available in ADAMS. And you can search ADAMS directly for it.

When that is a public document we will then provide these slides as a link on the set of web pages, which are on the slide, which is on the screen right now, which is the set of pages dedicated to this potential change in the regulations.

If you were to go to that link right now, you would actually find the presentations that we have done over the last number of months, which are very similar to these.

Each one changes a little bit. These now have the exact wording of the questions now that the ANPR has been published. So a new link with these slides will be available on that site.

There are also links for the ANPR document itself, for the regulations.gov site for submitting comments and for each of the issues paper that provide more elaboration are all available on those web pages.

MS. LOPAS: Okay. Good. I think I found it, too, today by going on the NRC website. And I think I just in the search box typed proposed Part 20 rulemaking. And I think that website came up, so.

DR. COOL: Well, that's nice.

MS. LOPAS: Yes, I know.

DR. COOL: And we haven't paid anybody to be Number 1 on the Google list.

MS. LOPAS: It wasn't Google. It was the NRC search. I don't know what happens with Google. Try at your own risk. But okay.

We have another person in the room. Come on up. *1 on the phone for the folks on the phone again to ask a question, make a comment.

MR. HARRIS: Good afternoon, Willie Harris, W-I-L-L-I-E, H-A-R-R-I-S, from Exelon Nuclear. My specific question is, and good presentation, Don.

But in the ANPR I did not see the cumulative impact of regulation questions. Did I miss that, or they are in there?

DR. COOL: Yes, sir.

MR. HARRIS: Is it the same process to submit?

DR. COOL: It is Section 6. It's on Page 43299 of the Register 3 column about halfway down Column 2.

MR. HARRIS: All right, thank you very much.

DR. COOL: There is actually an answer to the question.

MR. HARRIS: That was an easy one.

DR. COOL: It's an easy one, and each of those questions are then in fact in sequential order in Column 3 on that particular page. So, yes.

MS. LOPAS: Okay. Last chance for folks on the phone, *1 to ask a question or make a comment. Just press *1 on your phone. Anybody else in the room need to come up and ask a question, make a comment?

DR. COOL: If not, let me again finish by where I started, which is we are actively seeking your input. We would like your views on each of the questions. We would like the whys and rationale and data that go along with these questions.

These are not yes and no questions because our next step is to take all of this and develop a draft regulatory basis, to look at all of the reasons and to

explain to ourselves and to all of you in a satisfactory matter why a set of proposals might be warranted and what the implications are.

So we very much encourage everyone to provide their comments on the ANPR, and thank you very much.

MS. LOPAS: Okay. I think that concludes our meeting. Thanks everybody. Thank you everyone on the phone, and thank you Adrian, our operator.

OPERATOR: Thank you for your participation. This concludes today's conference.

(Whereupon, the above-entitled matter went off the record at 2:36 p.m.)