UNITED STATES NUCLEAR REGULATORY COMMISSION

BRIEFING ON BLENDING

****

THURSDAY

JUNE 17, 2010

The Commission convened at 9:00 am., the Honorable Gregory B. Jaczko, Chairman. Presiding

NUCLEAR REGULATORY COMMISSIONERS

GREGORY B. JACZKO, CHAIRMAN

KRISTINE L. SVINICKI, COMMISSIONER

GEORGE APOSTOLAKIS, COMMISSIONER

WILLIAM D. MAGWOOD, IV, COMMISSIONER

WILLIAM C. OSTENDORFF, COMMISSIONER

PANEL 1 - NRC STAFF

MICHAEL WEBER, DEDMRT

LARRY CAMPER, FSME

JIM KENNEDY, FSME

CHRISTIANNE RIDGE, FSME

PANEL 2 - STATE REPRESENTATIVES

EDWARD NANNEY, TENNESSEE

DAVID ALLARD, PENNSYLVANIA

SUSAN JABLONSKI, TEXAS

CRAIG JONES, UTAH

PANEL 3 - STAKEHOLDERS

JOSEPH DICAMILLO, STUDSVIK

WILLIAM DORNSIFE, WCS

TOM MAGGETTE, ENERGY SOLUTIONS

DIANE D'ARRIGO, NIRS

RALPH ANDERSON, NEI

CHAIRMAN JACZKO: We have a very engaging and active meeting this morning.

I'll just make some brief remarks before we start, and then I would ask that everyone do their best to stick within the time limits, everyone who is out there, eventually coming to the table.

We have fairly tight time lines for everybody, but I think this is an issue where I suspect the Commission will have a lot of interest in, and I want to make sure we can preserve that time for Commission questions and answers and discussion.

So if people can do their best to stick with the time limit on their presentations and make sure we have time for questions.

The issue we have in front of us of blending is a very interesting, I think, and unresolved issue for this agency. And I think today's meeting will continue to reflect the

dialogue that's been going on with the Staff and stakeholders recently, about looking at the need to -- or the feasibility of allowing some type of blending of material, prior to waste classification, and the effects that that would have on waste classification and waste disposal.

I just wanted to say that I think The Staff has done a really good job in this area, in reaching out to a variety of stakeholders, and this meeting reflects the interest that is out there on the Commission's actions in this area.

So I look forward to a very interesting meeting and would offer my colleagues on the Commission if they would have any remarks. Commissioner Svinicki.

COMMISSIONER SVINICKI: Thank you, Mr. Chairman. I also would like to compliment the Staff, specifically, for the policy paper that they wrote. This is a very complicated topic and I think that the Staff did an excellent job of trying to lay out the different perspectives. I also thank all the participants for the workshops, who have submitted comments in writing, and who are

here today, and I'm really in a listening and learning mode.

Thank you.

COMMISSIONER MAGWOOD: Just briefly, I just want to echo Commissioner Svinicki's comments, The Staff did an excellent job, I appreciate everything you have done. The paper was very, very informative, and I look forward to further discussion today.

Thank you.

COMMISSIONER OSTENDORFF: I add my thanks to that of my colleagues to the Staff, and I appreciate all the stakeholders and state representatives being here today.

I think we are really covering a lot of different, diverse viewpoints, and I know it will be very informative for us.

CHAIRMAN JACZKO: Mike, do you want to start.

MR. WEBER: Yes, thank you.

Good morning, Mr. Chairman, and Commissioners. We welcome the opportunity to brief you this morning on this important topic of blending low-level radioactive waste.

As you pointed out, the Staff has furnished a paper to the Commission earlier this year, and the purpose of our presentation, really,

this morning, is to set the stage for the panels that follow.

It is important that we keep in mind, throughout all of the Staff's analysis, we have been focused on ensuring the safety of people who might be in contact with waste, or handle the waste, throughout its life cycle.

So we're confident that the alternatives that we proposed in the paper do, in fact, achieve safety, so it is a classic policy issue before the Commission to decide which path is the proper course on this matter.

I'd like to introduce, briefly, the members of the Staff that will brief the Commission.

Larry Camper is the Director of Division of Waste Management and Environmental Protection, to my right. And to his right is Jim Kennedy.

Jim is the Senior Project Manager in the Low-level Waste Branch, in the Division of Waste Management, Larry's division.

And then to my left is Dr. Christianne Ridge. She is a Senior Systems Performance Analyst in the Performance Assessment Branch of Larry's division.

So without further ado; Larry.

MR. CAMPER: Thanks, Mike.

Good morning, Chairman, Commissioners.

The Staff certainly does welcome this opportunity to provide the Commission with a timely briefing on the arguably controversial topic of blending of low-level radioactive waste to reduce its classification to facilitate safe disposal.

Slide 2, please:

I will provide a brief overview of the low-level waste blending issue.

Jim Kennedy will discuss the Commission paper that we completed in April, and Dr. Christianne Ridge will discuss our safety analysis associated with disposing of blended

waste. 8

I will present some conclusions at the end.

Slide 3, please:

My overview of the program will include certain key messages, significant actions to date by the Staff, and options that the Commission could adopt for an agency blending policy position.

Slide 4, please.

So, why is low-level waste blending on the table?

On June 30, 2008, the Barnwell Disposal Facility in South Carolina closed to out of compact low-level waste generators, leaving generators in 36 states with no disposal option for their Class B and C low-level waste.

In responding to this development, generators have several options, including, at least, for some of the waste, to blend waste at Class B or C concentrations with Class A waste, to form a Class A mixture that can be disposed of

at an existing disposal facility. 9

Blending in this context is the mixing of low-level waste with different concentrations of radionuclides, which results in a relatively, homogenous mixture that may be appropriate for disposal in a licensed facility.

The waste processor in Tennessee, EnergySolutions was granted approval from the Agreement State regulator to conduct pilot testing of a large scale blending of ion exchange resins and filter media, and has performed pilot testing on components of its blending process.

EnergySolutions intends to request approval for commercial scale processing.

Because this proposal is different from past practice, Tennessee is interested in NRC views on the matter. This proposed blending approach would reduce the amount of Class B/C waste that generators would otherwise store on-site, until a new disposal option becomes available.

Currently, NRC regulations neither

explicitly address nor prohibit blending.

NRC has published guidance on blending of radioactive waste, that is not always clear or consistent from one program to another, and stakeholders have interpreted our positions in different ways.

The low-level waste blending guidance recommends certain constraints on the amount of blending that can occur, but also recognizes that there are instances, for example, when there are operational efficiencies, or the potential for worker dose reductions, where blending that lowers the waste classification is appropriate.

Stakeholders have raised a number of issues related to blending, including safety and policy issues.

It is important to note that the disposal of large amounts of blended waste, resulting in waste near the Class A limits, was not analyzed in the Environmental Impact Statement for NRC disposal regulations contained in 10 CFR Part 61.

On October 8, the Chairman directed the Staff to prepare a vote paper that addressed issues associated with blending, particularly blending that results in a change in the classification of waste, under 10 CFR 61.55, noting that stakeholders had requested clarification of NRC's blending policy.

In developing the paper, the Staff goal was to identify, and systematically analyze all of the issues and concerns with large scale blending, to provide a range of options for the Commission for a low-level waste blending policy, and to recommend a preferred approach, based upon sound regulatory analyses, while avoiding a preference for any particular business model.

Slide 5, please:

Blending that changes the classification of waste is the primary issue associated with blending.

Waste is classified for the purposes of ensuring its safe disposal.

Waste is not required to be classified

at intermediate points between its generation and disposal, such as processing and storage, because these intermediate points do not directly affect its safe disposal.

The requirement to classify waste is contained in 10 CPR, Part 61, our regulations for land disposal of low-level waste, and the classification tables are contained in 61.55, in particular.

The slide that you saw a moment ago depicts table two, one of the two waste classification tables in 61.55. It is the table defining waste classes for short-lived radionuclides.

There is another table for long-lived waste but Table 2 will illustrate an important point regarding the subject of blending.

Note that the primary discriminator affecting the radionuclides in this table is concentration in curries per cubic meter. It is the only discriminator potentially affecting dose to an intruder.

The waste in this table can be Class A B, C, or greater than Class C, as a function of concentration.

While the waste in table one can be Class A, C, or greater than Class C. But Class B contains only short-lived radionuclides. All the concentrations and classes shown in this table are designed to be protective of an inadvertent intruder, irrespective of what the concentration or class of waste may have been at some point prior to this being shipped for disposal.

Slide 6, please:

With the increased interest in low-level blending in the last year, we have taken a number of significant actions.

These actions include, first: Writing letters summarizing the Staff position on low-level waste blending to the three principal industry stakeholders who had asked for clarification last year, and engaging these same stakeholders in public meetings in December, 2009, to hear their detailed views on this issue.

Second, visiting two other stakeholders who have waste processing facilities in the State of Tennessee, in order to see their operations firsthand.

Third: Holding a public meeting in January of this year to receive all stakeholder views on blending. More than 60 people attended, and we received a great deal of input, which we also addressed in the Commission paper.

Fourth: We published a Federal Register notice in November of last year, soliciting stakeholder input on the blending issue.

Fifth: We concluded our own independent analysis of disposal of large amounts of blended waste, to determine the safety significance of such disposal. And Dr. Ridge will discuss that in more detail during her comments.

And Sixth: We completed the Commission paper on blending on schedule in April, as requested by the Chairman

Slide 7, please:

There are four options that we

identified in SECY-10-0043 for a blending policy position that the Commission could endorse.

First: Maintain the status quo contained in our guidance known as the concentration averaging branch technical position.

2: Implement a risk-informed, performance-based approach to blending.

3: Further constrain blending by adopting a regulation that requires that the waste be classified at its highest concentration, wherever that may occur in the process.

4: Prohibit large scale blending, off-site blending, at a waste processor.

The Staff also has raised an important corollary issue warranting attention, that being the 1981 volume reduction policy statement, which we believe needs to be updated as part of addressing this issue.

That concludes my opening remarks, and Jim Kennedy will provide more detail on the Commission paper, and our recommendation, and I certainly do appreciate your attention.

Thank you.

MR. KENNEDY: Thank you, Larry.

Slide 8, please:

Good morning. Today I'll address the following areas.

First: The direction that we received in the Chairman's October 8, 2009, tasking memo, and generally the approach that we used to develop a response to it.

Second: The policy issues addressed in our recently issued Commission paper.

Third: Our recommended option for a blending position for the NRC.

Slide 9, please:

As Mr. Camper noted, there's been extensive stakeholder interest in blending. Waste processors, advocacy groups, states, disposal facility operators, low-level waste compacts, state and Federal legislators, and licensees, especially nuclear power plant operators have provided their views to us, either in meetings or letters. These stakeholders have a variety of

views often conflicting on the issues related to blending. 17

For example, some argue that blending increases waste volumes, contrary to the Commission's 1981 volume reduction policy statement, while others argue that blending results in no increase in the volume of waste.

Some argue that blended waste would result in unsafe radiation exposures, while others say blended waste poses no safety issues.

In developing the Commission paper, we sought to identify and understand all the issues and different points of view, and to systematically analyze the issues related to blending of low-level waste.

Insofar as possible, we attempted to provide a complete description of the issues and relevant facts, so that the Commission has a basis upon which to make an informed decision on the low-level waste blending policy.

Our Commission paper is the formal Staff response to the Chairman's October 8, 2009, tasking

memo. That memo directed us to prepare a vote paper that discussed, among other topics, the following:

First, safety, security and policy considerations.

Second: Protection of the public and inadvertent intruder into a disposal site, and the environment.

Third: Mathematical averaging and homogeneous physical mixing.

Fourth: Practical considerations.

And last: Recommendations for revisions, if necessary, to existing regulations, requirements, guidance, or oversight, related to blending of low-level waste.

The Commission paper itself addresses three categories of issues; policy, technical or safety, and regulatory issues.

Because of limited time, I would like to give a brief summary of the policy issues in the paper, and Dr. Ridge will address safety issues.

We would be happy to discuss these, or

any of the other parts of the paper, in more detail, during the question and answer portion of this meeting.

Slide 10, please:

These are the policy issues.

First: Past agency statements on reducing waste class. In our various waste programs we have discouraged blending to lower the waste class, while recognizing that it may be appropriate under certain circumstances.

The agency has positions on blending -- the agency positions on blending are not always identical, and their bases not uniformly understood.

In any case, any blending policy needs to be considered, in light of what the agency has specified for blending in the past, in other waste programs.

Second: Facilitation of safe disposal of waste through blending. The Commission and Staff has stated in the past, that disposal is preferred over long term storage of low-level waste, because it is a permanent solution.

The current industry blending proposal would enable the permanent disposal of certain low-level waste, that would otherwise have to be stored indefinitely as Class B/C waste.

Third: The impact of blending on the existing low-level waste management program in the U.S. -- several stakeholders have argued that, significant reduction in the Class B/C waste disposal volumes from large scale blending would adversely affect waste disposal facilities.

In particular, a company has argued that large scale blending would potentially undermine the success of its new facility for Class A, B and C low-level waste by reducing a significant waste and revenue stream.

Fourth: Disposal capacity. Another policy issue is an argument made by a stakeholder that blended ion exchange resins would quickly use up capacity at the existing Class A disposal facility.

The disposal facility operator, however, provided its own estimates for remaining capacity, which were significantly different, and ranged up

to many years of capacity in the future, depending upon the assumptions.

We did not independently analyze these estimates, capacity is affected by assumptions about future business obtained, the licensing of additional disposal cells, future waste generation rates, and other factors, and any conclusions about future capacity by the Staff would be speculative.

Slide 11, please:

Another policy issue involves unintended consequences, in the public comment process, one stakeholder representing a number of materials licensees, cautioned NRC that unintended consequences may result if a new position is taken that further restricts the blending of waste.

The stakeholder noted that there are materials facilities that are blending now and that could be adversely affected by a new position.

The stakeholder also noted that when new facilities for producing Molybdenum 99 are developed in the U.S., they will generate class

B/C waste that could potentially be blended.

Another commenter noted that waste processor operations and numerous other licensed operations could be significantly impacted by a rigid rule that prohibits blending.

The sixth policy issue is GTCC waste or greater than Class C waste. Several stakeholders were concerned that a new blending position would enable GTCC low-level waste to be blended to a lower waste class. A specific concern is that disposal of GTCC is a Federal responsibility, while disposal of Class A, B and C is the responsibility of the states.

And seven: Volume reduction. In 1981 the Commission issued a volume reduction policy statement at a time when there was a shortage in disposal capacity, because of limits imposed by states with disposal facilities. The policy statement encourages licensees to take steps to generate less waste, and to reduce volume, through processing, in order to preserve capacity.

Some stakeholders argue that large scale

blending of waste is contrary to this policy statement.

Slide 12, please:

Mr. Camper identified four options for a blending position that were presented in our Commission paper, maintaining the status quo, risk informing blending, further constraining it, and prohibiting large scale off-site blending at a waste processing facility.

Our Staff recommendation is to implement a risk-informed performance-based position consistent with the definitions of these terms in the NRC strategic plan.

There are four agency actions associated with this options.

Slide 13, please:

First: To piggyback onto our recently initiated unique waste streams rulemaking, that is, to explicitly state that large scale blended waste should be subjected to a site specific intruder analysis, in accordance with this new rulemaking.

The rulemaking was approved by the Commission in the Spring of 2009, and its genesis was a need to address the disposal of large quantities of depleted uranium.

Dr. Ridge will elaborate on the relationship between the blending of low-level waste and the rulemaking.

Second: We would also update our current guidance in the concentration averaging branch technical position. The BTP addresses both physical mixing, which is one of eight sections in the document, as well as mathematical averaging of radioactivity concentrations.

The staff had already planned on updating this guidance. If the Commission chose this option, we would revise the guidance to make it risk-informed performance-based by defining homogeneity and sampling considerations for blended waste, to ensure that the characteristics of the waste after blending will enable safe disposal. We would also eliminate positions related to why the blending is being performed,

such as the achievement of operating efficiencies.

And finally, we would clarify that the position applies to waste processors.

The third part of our recommendation for blending would be to issue interim guidance to Agreement States that would describe the plan changes in the NRC blending position, and provide guidance on how states should respond to requests to blend low-level waste, until NRC's rulemaking and guidance are completed.

And finally, we would revise the volume reduction policy statement to acknowledge other important factors and licensees' decisions to manage low-level waste, not just volume reduction.

As I noted earlier, the statement was issued at a time when two of the three operating disposal sites had temporarily shut down and the third had restricted the volume it could receive. The Commission's endorsement of volume reduction was meant to help ensure that disposal options remained available, and that licensee operations and services would not be disrupted.

Since the policy statement was issued nearly 30 years ago, industry has been very successful in reducing volumes, reducing pressurized water reactor waste volumes, for example, by 25-fold, from 1980 to 2000.

And the statement has served its purpose well.

Some stakeholders have taken the policy statement out of its original context and used it to argue against blending.

It is important to note that blending is inherently volume neutral, mixing B and C concentrations of waste with Class A results in the same waste volume.

It is true that in some cases Class B/C waste might be volume reduced through further processing, if it were not blended, but the effect on overall waste volumes is small.

Now, given the success in reducing waste volumes in the last 30 years, The Staff believes volume reduction needs to be put in the current context of low-level waste management, and that

the policy statement should be updated, if the Commission chooses to risk inform the blending policy.

We believe volume reduction should not be considered in isolation, but as one part of an overall waste management approach.

And now Dr. Christianne Ridge will address safety issues related to disposal of blended waste. Thank you.

DR. RIDGE: Thank you, Jim.

Good morning. This morning I will address the following areas. The performance objectives of 10 CFR Part 61, and the development of the Part 61 waste classification system, issues related to homogeneity of blended waste, our safety analysis observations, and the Staff recommendation for blending of low-level radioactive waste.

Slide 15, please:

The performance objectives of 10 CFR Part 61 require protection of the general public from releases of radioactivity; protection of

individuals from inadvertent intrusion; protection of individuals during operations and site stability.

Whereas, the requirement for site-specific performance assessment to address protection of the general population from releases of radioactivity is clear; the need for site-specific analysis to demonstrate protection of an inadvertent intruder has not been well understood.

Today I'll explain why the requirements for demonstrating compliance with those two performance objectives have not always been approached the same way, and why that difference is relevant to large scale waste blending.

Protection of an inadvertent intruder is a key issue with respect to blended waste, because the waste classification system, and, in particular, the concentration values in the tables in 10 CFR 61.55 were based on analyses of protection of an inadvertent intruder.

Although protection of an offset member

of the public was considered in those analyses the most restrictive scenarios with respect to radionuclide concentrations were intruder scenarios.

Because the waste classification tables were based on generic analyses of potential intruder doses, some NRC guidance documents have indicated or implied that compliance with the performance objective to protect an inadvertent intruder could be demonstrated by showing the appropriate waste classification requirements were met, without a site-specific intruder dose assessment.

This reliance on the waste classification system makes the intruder dose sensitive to any differences between the proposed waste disposal practices and the assumptions underlying the development of the waste classification system. And in the case of large scale blending there are differences.

For example, waste from a large scale blending process is expected to have greater

radionuclide concentrations in greater volumes than the Class A waste streams contemplated in the development of the waste classification tables, which would tend to increase intruder risks.

On the other hand, modern disposal practices are more robust than originally contemplated in the Environmental Impact Statement supporting the development of 10 CPR Part 61, which would tend to decrease the potential extent of intrusion and, therefore, decrease intruder risk.

One important component of the risk to an inadvertent intruder is waste homogeneity.

Slide 16, please:

Homogeneity is of particular concern with respect to large scale blending, because blended waste is expected to have radionuclide concentrations near the Class A limits. In general, it becomes more difficult to demonstrate that waste meets a classification limit as radionuclide concentrations approach the limit.

Thus, the Staff expects that new

guidance for demonstrating homogeneity would need to be developed.

In addition, The Staff expects that any guidance for demonstrating physical homogeneity should be consistent with provisions for mathematical averaging, allowed in our regulations and addressed in Staff guidance.

Guidance for demonstrating waste homogeneity is likely to be driven by potential intruder doses more than by potential doses to an off-site member of the public, because radioactivity is naturally averaged in the environment before it can reach an off-site member of the public.

Some, but more limited averaging, would also take place if an intruder exhumes waste and brings it to the surface. In a risk-informed performance-based approach, homogeneity would be evaluated in the context of the mixing that would naturally take place in any plausible intrusion scenario.

For example, it may not be necessary to require homogeneity on a one cubic foot scale if there is no reasonable,

foreseeable way for an intruder to be exposed to a single cubic foot of waste.

During our analysis -- I'm sorry.

Slide 17, please:

During our analysis of safety issues related to blending, the Staff made three main observations.

First: Commenters noted, and the NRC Staff independently confirmed, that disposal of large volumes of waste, near the Class A limit, under the minimal disposal requirements envisioned in the EIS, supporting development of Part 61, could, in some cases, lead to intruder doses significantly in excess of 500 millirem.

Let me explain here what I mean by large volumes. The NRC Staff understands that waste near the class A limit is safely disposed of in low-level radioactive waste disposal sites today.

The particular concern, with respect to large scale blending, is that waste near the Class A limit may be disposed of in larger volumes, such that an intruder would encounter only waste near

the limit, without any mixing with waste further below the limit.

In many cases, the most restrictive intruder scenario is one in which an intruder lives in a house constructed on a waste site, where waste excavated during basement construction has been spread on the land surface around the house.

In this context, a large volume of waste would be the volume of waste, with any clean cover, that would be excavated during basement construction.

So, throughout, when we say large volumes, this is the type of large volume we mean.

The staff confirmed that, depending on the dominant radionuclide in the waste, disposal of large volumes of waste near the Class A limit, in the configurations envisioned in the Part 61 Environmental Impact Statement, may not meet the Part 61 requirement to protect individuals from inadvertent intrusion. For this reason, simply showing that waste meets the Class A limits along may not demonstrate protection.

A site-specific intruder analysis, on

the other hand, could explicitly demonstrate intruder protection.

This type of site-specific analysis would take account of features of modern disposal sites that would help ensure protection of an inadvertent intruder.

For example, waste near the Class A limit often is disposed with greater than the one meter cover assumed in the Part 61 analysis, in containers, rather than bulk waste. And in some cases, with an engineered intruder barrier.

All of these features would tend to lower the potential dose to an inadvertent intruder. Because of these features modern disposal sites are likely to be able to safely accommodate disposal of large volumes of waste where, again, a large volume is relative to the amount of waste an intruder could plausibly encounter.

Whether any individual disposal site could safely accommodate such waste, would depend on the specific features of the site, and the particular

radionuclide mixture in the waste, among other factors.

Slide 18 please:

To clarify the requirement for a site-specific intruder analysis, the Staff has recommended addressing blending as part of the ongoing unique waste streams rulemaking.

The need for unique waste streams rulemaking was identified as a result of the Staff's analysis to address disposal of large quantities of depleted uranium. As currently envisioned, the rulemaking would add an explicit requirement for site specific intruder dose assessment, including a dose limit applicable to an inadvertent intruder.

As previously discussed, disposal of large quantities of waste, near the class A limit, unmixed with lower concentrations of waste, like disposal of large quantities of depleted uranium, was not considered in the Environmental Impact Statement for the development of Part 61.

Thus, the Staff recommends that the

language added to Part 61, as part of the unique waste streams rulemaking, be general enough that it address large volumes of waste near the Class A limit, among other waste streams, as waste streams requiring a site-specific intruder dose analysis.

This concludes my comments on the Staff's technical analysis. At this point, I would like to turn the presentation back to Mr. Camper for some concluding remarks.

MR. CAMPER: EnergySolutions intends to perform off-site blending of low-level waste on a large scale at a waste processing facility that would enable the waste that would otherwise be Class B/C to be blended with Class A, former Class A mixture, which can then be disposed of in an operating low-level waste disposal facility.

Large scale blending thus is a timely and real topic, and we do need to identify an agency regulatory position on the matter. There is a great deal of stakeholder interest and concerns out there and whatever the Commissioner's decision is, we will need to ensure that we have an adequate and

thorough plan for communicating with all the stakeholders.

We thank you for your attention and that concludes our comments.

CHAIRMAN JACZKO: Thank you, Larry. Thank you Mike and Jim and Christianne for that presentation.

We will start with Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you Mr. Chairman. First I would like to thank the Staff for the paper they sent up, it was really very informative, especially for someone like me, who is -- I am dealing with these things for the first time.

I'm curious, if we accept dilution, what kind of increase in volume are we talking about? Is there experience from Texas, which I understand allows dilution. Is it very significant, or minor? What is it?

MR. KENNEDY: If we accepted the position that further constrained blending?

COMMISSIONER APOSTOLAKIS: I understand the

Staff is not enthusiastic about dilution because it increases the volume. The question is by how much? Do we have any experience with it; from Texas, for example, as to what kind of volumes we are talking about?

MR. CAMPER: No, not exact numbers. Our view is that the blending situation is, for all intents and purposes, volume neutral.

COMMISSIONER APOSTOLAKIS: Yes, I understand that, but I'm talking about dilution which is something that is not preserving the volume.

You are adding water or some other substance.

Is that significant? Is the change in volume significant?

MR. CAMPER: I'm not sure that we have analyzed that. I mean, this is not about dilution, this is about mixing different classes of waste, as opposed to non-waste.

COMMISSIONER APOSTOLAKIS: Now, coming to the risk-informed approach, which is the option the Staff is proposing. Was it a surprise to you that I'm not against it,

but I'm wondering, though, the intrusion scenarios have always been difficult to analyze.

I remember a few years ago in the high-level waste area, the probability that there will be somebody intruding is really very difficult to evaluate. So that would be a major problem here.

And in addition to that, I wonder what other assumptions -- I mean, you probably provide some guidance to people how to do it. And how prescriptive is that guidance going to be?

For example, in terms of the existence of the institutional barriers, I hope we are not going all the way and say there are no barriers, and people just walk in and start drilling wells.

So how are you going to handle this? It was a major issue.

In fact, as I understand it, it was decided to do the high-level waste, to do the human intrusion analysis, but not have it part of the performance assessment, or something like that.

So now, you're proposing to do something like this for low-level waste and, I don't know, you're going to have the same problems, right?

DR. RIDGE: We do have a history of considering intrusion scenarios for low-level waste, because we are talking about near surface disposal for low-level waste, different, obviously, from other situations like high-level waste.

So we do have a history. There were intrusion scenarios in the EIS, and we do consider intrusion scenarios in other contexts.

The guidance would not necessarily -- I don't think it would be the type of worst case scenario that you were envisioning, where we assume that there are no controls, we do assume right now that there would be institutional controls for a certain period of time. Right now we consider a hundred years.

And we do consider that there could be barriers that would be robust enough to last for several hundred years.

Now, specifically, what we would require, obviously we would consider as we drafted the guidance, but I don't think it would be the type of, necessarily the worst case scenario that you seem to be concerned about.

COMMISSIONER APOSTOLAKIS: When you say there are scenarios, I can see a scenario where we say, okay, the guy is doing this, and then what happens next?

The real issue in this context is the probability that the intruder would actually come and start doing things, and that is very difficult to quantify. So somehow you have to work around it and get some guidance.

DR. RIDGE: Traditionally, we considered this as a conditional probability, we've considered, assuming that there is an intruder scenario, then what would the dose be? And to some extent, that is built into the higher dose limit that is allowed for intruders than would be allowed for an offsite member of the public.

MR. CAMPER: What we would be building

upon, Commissioner, we would be building upon the risk analysis that was already done when Part 61 was done. In that case, the probability was one. It will happen.

The consequence was to limit the dose to 500 millirem.

COMMISSIONER APOSTOLAKIS: Well, you know, any time you say there is a probability of equal to one, because are you calling it risk-informed and performance-based. So that the real question then is, given that you have done this risk analysis, what performance goals are you going to set?

Because, of course, the performance goals will have to acknowledge that you have made certain conservative assumptions in the assessment, so you have thought about these things, or you plan to think about these things, if the option is approved.

It's a good way to proceed.

MR. CAMPER: Yes, sir. For the particular task at hand, the issue of addressing this blending, just like we did with depleted uranium,

we are going to be building upon the process that exists today in Part 61.

More broadly, as the Staff looks at Part 61, in toto, I mean, the Commission has directed us to fund for a rulemaking that will risk-informed the waste classification scheme in Part 61.55.

Increasingly, we are of the view that Part 61 needs a complete reexamination. Among other things, is the issue you're talking about. What is the probability, actually, that an intruder would go in?

COMMISSIONER APOSTOLAKIS: What would be the performance goals, too. It would be a major undertaking. And should they be uniform around the country? There will be several policy issues, it seems to me, although that, presumably, will be a more realistic analysis because it will be site-specific.

MR. CAMPER: Again, the idea for this particular issue is to use the process that's in place today in Part 61, and the scenarios that

were used when Part 61 was created, to make sure that we are capturing this waste stream, which has emerged since Part 61 was completed.

That would be the way we would handle it now.

COMMISSIONER APOSTOLAKIS: Another question, mainly for clarification: This issue of homogeneity.

Do I understand correctly that you plan to say something about it after these analyses have been done; whether you will demand homogeneity or not, because right now from the paper I got the impression that the Staff is against non-homogeneous waste streams, and you would rather see homogeneous streams, right?

But then I got the impression from the presentations that you would reconsider this, depending on the intrusion scenarios, correct?

DR. RIDGE: I think you bring up a very good point, Commissioner. I think that the point we've tried to emphasize is that homogeneity should be considered essentially in a risk

informed way in which it matters, and it matters in the context of an intrusion scenario, because some mixing will take place during an intrusion scenario.

So the scale to which you require homogeneity should be considered, we believe, in the context that it matters now, and that being an intruder scenario.

That said, we do have requirements in our regulation that Class A waste be disposed of as Class A waste, and that you know it's Class A waste, and, obviously, as you get closer to the limit, there is less uncertainty that you can tolerate in your estimate, to show that you are below your limit, as you well understand.

So those two considerations would need to be included in any development of interim guidance.

COMMISSIONER APOSTOLAKIS: So it would be part of the risk management efforts, after you have the site-specific analysis, is that correct?

DR. RIDGE: Well, I think we were

envisioning guidance for any licensee, guidance on showing homogeneity of the waste, and to what extent that that needs to be shown.

MR. WEBER: I think the Commissioner's comment is that it's the risk assessment that would inform the development of guidance and that's an interim process.

COMMISSIONER APOSTOLAKIS: Thank you very much.

CHAIRMAN JACZKO: Commissioner Magwood.

COMMISSIONER MAGWOOD: Thank you, Chairman.

Let me pick on Mr. Kennedy first. And this is completely gratuitous, I'm going to do it anyway. You mentioned that the policy settlement of the volume reduction has been a big success and the volume of low-level waste has come down so far in the last 20 years.

I somehow suspect it had more to do with the cost of low-level waste disposal than it did our policy statement. I know we are a great and powerful organization but money does talk.

But, I do have a question for you: I think you mentioned that -- I think it was you

that mentioned you would like to pursue an updated branch technical position, and maybe it was you, I can't figure out, whichever of you raised it, but the update on the branch technical position, you mentioned that you're going to deal with the homogeneity issue as part of the guidance on that.

Is that the best place to do that? Do you think guidance is the right mechanism to use to deal with the homogeneity issue or should that be the rule?

DR. RIDGE: Well, I think we have envisioned it in guidance, because those types of requirements are in guidance right now, they are in the branch technical division. Those types of considerations are in the branch technical division right now.

I think that as part of the rulemaking process that might be something we would consider but right now, yes, we do think that putting it in guidance would provide flexibility. There might be more than one way to demonstrate homogeneity,

and we would like to give licensees the opportunity to choose the best method for demonstrating that.

MR. CAMPER: May I add that? For example, we could, in the rulemaking that we are proceeding with, have a requirement that homogeneity be evaluated, and then specify in the guidance how one would do that.

Homogeneity is very complicated, and one must remember that homogeneity is associated with the intruder dose scenario.

For example, in the existing branch technical position, things such as resin filter media are assumed to be homogenous, because the canisters in which they were buried have decayed, the resin beads have mixed with other surrounding waste, and then of course when the intruder goes in and invades and brings up that material, there is further mixing, so it is homogeneity, as it relates to the intruder dose at one hundred plus years.

The second point is, is what Christianne

was pointing out in her comments, that the real concern, in terms of immediate operational homogeneity is ensuring that you have achieved that because you're operating near the peak Class A dose limits.

And so that's what the guidance would be emphasizing, those two points.

COMMISSIONER MAGWOOD: We're really talk about resins here, when you talk about the blending. Is there anything beyond resins? I mean, you haven't really said it specifically, I'm just curious as to is there anything beyond B and C resins that we've blended that is realistically part of the discussion?

MR. KENNEDY: Yes, the proposal down in Tennessee also involves filter media as well.

And then, beyond that, a strictly risk-informed performance-based policy on blending would, I would argue, enable other kinds of homogeneous waste to be blended as well.

Like trash, for example, could be blended in.

Now, at some point, folks may say, well, you know, if you got lightly contaminated soil being mixed with Class B and C concentration resins, that's really tantamount to dilution, and I think that is a point that we will need to look at further, perhaps like in the NEPA analysis, if we were to go with the risk-informed performance-based rulemaking.

But right now the proposal is limited, a strictly risk-informed performance-based approach could involve all kinds of different types of waste that are mixed together, and I think we need to look at that more closely, if we go ahead with this option.

COMMISSIONER MAGWOOD: Yeah, I think that's an excellent comment. It seems to me that's where the unintended consequences come into play, because people get very creative, and there might be some options out there that we just haven't given any serious thought to that someone might want to pursue, if we go down this path.

So some way of trying to understand what

those might be would be really helpful.

And this leads to another question I have. We do have the state representatives coming up in a moment, and I would like to speak with them about this a bit too but I want to get the Staff's thoughts about this.

Are you concerned about the prospect of creating, in effect, an orphan waste, if we go down this path? Is there a possibility that by allowing blending that we might create a situation where no one accepts it and it never gets disposed. Is that something you have given thought to?

MR. CAMPER: Well, we certainly don't want to see a scenario that creates orphan waste obviously. However, you have to consider a couple of points when thinking about an answer to that question.

It is certainly correct that not all B/C waste can be blended to Class A waste under the proposed methodology. There would be some left behind. Estimates are right around 5000 cubic feet.

But that waste could be stored, safely, just as is all B and C waste today for those 36 states that do not have access. So we certainly are mindful of not creating an orphan waste scenario.

But you have to consider those two issues and mainly what you come back to is safe storage of that waste.

COMMISSIONER MAGWOOD: Can you characterize perhaps what the percentage of waste you think will be blended, B and C waste that will be blended versus what's not likely to be blended; can you give us a general characterization?

MR. KENNEDY: Just generally, the numbers that we have from data published by EPRI, I believe it's, roughly, two-thirds, I think, of the ion exchange resins that are being produced today, could possibly be blended, or capable of being blended down to Class A concentrations, would take care of about two-thirds of the Class B/C ion exchange resin waste stream, which is a significant fraction of the overall Class B waste stream.

COMMISSIONER MAGWOOD: It is a pretty significant

portion.

MR. KENNEDY: Yes, It is not a few percent, it's much more than that.

COMMISSIONER MAGWOOD: The Staff has recommended pursuing this as part of the existing rule that largely focuses on depleted uranium, which is a rule that for lots of reasons, we clearly want to see moving forward.

That said, this seems to be a very contentious issue with a lot of strong feelings about it. I wonder, from a policy standpoint, is merging these two -- it might be an efficient approach, but I wonder if it is a smart approach.

Are we taking one that we would like to see move forward for a variety of reasons, and loading it in with one that has a lot policy issues, and a lot of strong feelings, and perhaps are we running the risk of not getting anything done.

MR. CAMPER: That's an excellent question. Clearly, we think it is the most efficient thing to do, since we are now currently underway in developing the large quantities of depleted

uranium rulemaking.

That rulemaking will require a site-specific performance assessment.

So, therefore, there is an awful lot of -- it is easy to simply modify what we would do with regard to this blending, as it relates to the requirement for a site specific performance assessment.

So not only is it efficient and timely, it's very much about the same thing, the same thing being, this is a category of waste that was not evaluated during the development of Part 61, just as was large quantities of depleted uranium not considered then.

By relying upon a site-specific performance assessment, you guarantee that this material will be safely disposed of at a given site, in a manner that protects public health and safety.

The other point I would make is that its timing in need.

This issue is before us now, depleted

uranium disposal is before us now or will be very shortly, as the Department of Energy proceeds.

Any adjustments we make to Part 61, particularly if we end up pursuing a total comprehensive revision of Part 61, in the Staff's view, will be a very protracted affair, it will go on for five or six years.

So we have a vehicle before us now that addresses the question of evaluating a waste stream that was not evaluated before, it seems to make sense to us, therefore.

MR. WEBER: Another way to say that is the proposal for the depleted uranium rulemaking is a process requirement and that same process requirement could also address this need.

But, your point is a good one, something that, obviously, you will want to consider the stakeholder comments on, and I think we will have no shortage of help, with people advising the Commission on how best to proceed.

COMMISSIONER MAGWOOD: Do you have a sense of what resources will be required for a separate

rule on blending, if we decide to go that route?

MR. KENNEDY: No, we didn't look at that specifically but it would certainly be on the order of a few FTE, at least in a few years.

MR. CAMPER: If we evaluated the FTE that would be added by adding a piggybacking onto the depleted uranium, which is minimal.

We also evaluated resources for the other options, but if we proceed with a separate rulemaking it will certainly be more costly, and then as Jim said, it will certainly be a few FTE and, perhaps, some contract support dollars.

MR. WEBER: Another constraint that we operate under, and Steve may want to comment to this effect, is we can't change the same part of the regulations concurrently, at the same time.

So if we open up Part 61 to address the depleted uranium process requirement, that could affect the same parts. I don't know if you want to comment on that?

So you'd need to do it in series rather than in parallel.

MR. BURNS: I think Mike is right. You have to -- ultimately you have to have a path, it's rational -- that proceeds rationally, so that commenters from -- so stakeholder comments can understand where the Commission is going, that you have, whatever your ultimate path is, in terms of the rule you would adopt, has been properly noticed, comment received on, and then integrated. But, there are ways of doing that, as long as you meet that ultimate objective.

COMMISSIONER MAGWOOD: Definitely a lot to think about there.

Thank you very much. Thank you, Chairman.

CHAIRMAN JACZKO: Thank you, Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman. I find the briefings and the Q and A dialogue here very helpful, so thank you all for your participation.

I want to maybe piggyback on a comment that Commissioner Magwood made. It's kind of in

the spirit of unintended consequences, that was a question on orphan waste streams, and I'm going to kind of use that in the context of slide 10, and I'm going to ask Jim this question and ask others to chime in, certainly, you know, in the risk-informed proposal in the policy paper, which is your recommendation, let's just assume hypothetically that goes forward and that that risk-informed, site-specific analysis type of methodology will provide appropriate safety of the public for our regulatory requirements.

I'm interested in understanding the flexibility notion as to NRC puts out this particular rule that goes through and has a technical foundation that we always have as part of our system.

But, at the end of the day, NRC is not going to be the one -- NRC is not going to be the body that actually stores this waste, it has to be done in partnership with states and the private sector.

So in the spirit of looking at the

flexibility of a rule, as to its applicability, I wanted to ask a question on compatibility, because I think that's really, at the end of the day there has to be some mechanism that makes -- that doesn't result in orphan wastes or create unintended consequences by virtue of boxing the state or any other entity into a corner.

Can you talk a little bit about how you would see the compatibility being addressed, and if a rulemaking goes forward here, and what might be the ways of engaging the stakeholders in that compatibility determination?

MR. KENNEDY: Well, let me talk generally, because I don't work in that area, but we have talked about it a lot.

I can say this, the Commission, of course, has its 1997 compatibility policy statement that lays out the criteria for determining whether a program, an Agreement State program is compatible.

We on the Staff have a procedure Management Directive, 5.9, in our office at FSME

that lays out the process that we use to determine the compatibility of an Agreement State program, including any regulations that would deal with blending of low-level waste.

That process or that procedure includes formation of a working group, with members, state members on it, and they determine the compatibility for a new rulemaking.

At the end of all that, the Commission gets to weigh in on its view as to what the compatibility category should be for a particular rulemaking.

So depending upon how all that comes out, it is possible that a rulemaking on blending could by a compatibility category that provided flexibility to the states to do what they want with respect to blending, to restrict it, for example, or it could be a matter of strict compatibility in which they had to adopt a risk informed, performance-based approach like the NRC might adopt, if you were to go with that position.

But that's the process that we have in

place.

We have state programs, folks here who can elaborate on any other questions that you might have.

MR. MILLER: Good morning, Charlie Miller , I'm the Director of the FSME.

One thing I think is important, Commissioner, to understand is, when we undertake a rulemaking that's going to involve Agreement States having to be compatible in some way, shape or form, the Agreement States participate in the working groups in the development of the rulemaking, and we try very hard to get the states' perspectives as we go forward.

That said, when that's done, when we put the rulemaking before the Commission, the Staff will make a recommended compatibility statement.

There have been, in the history of these rulemakings, there have been times where the Commission agreed with the Staff, there have been times when the Commission has not agreed with the Staff and the Commission has directed a different

compatibility requirement.

So, that does become part of the policy decision that we make in the end. But we try hard to try to seek state perspectives on that, so that their interests are represented.

That said, I think what you will find when we go forward with this is, states' perspectives are not always the same either. Especially if it is involving states who would be the likely candidates to receive a disposal facility. So we have to factor all of that together.

But I think the important thing is that we try to come out with a recommendation on any rulemaking that's going to adequately protect public health and safety.

With regard to licensing facilities in an individual state, if it is not an NRC licensed facility, that's the state's decision, as to whether or not they want to proceed on licensing the facility in that state. That is a decision that takes place between an applicant, who wants

to site a facility in the state, and the state regulator. If it falls on our category, well, then, we would make such the same decisions.

So the states are pretty capable of doing that, from our history.

So with regard to orphan waste, there seems to be some concern about orphan waste. I don't think a regulation that we would put in place would lead to orphan waste in and of itself, meaning there would be no pathway for it.

Because, I think that the industry, and the industry can speak for themselves, probably wouldn't put themselves in a position that they would blend waste if it turned out that there was no pathway for its disposal, if that turned out the be a bad scenario that ended up orphaning the waste.

But I'm sure that same line of questioning can be answered by the industry when they have their turn at the table.

I'm giving you my impression. Thank you.

COMMISSIONER OSTENDORF: Thank you. A very quick question to Larry on the Part 61 review.

I'm understanding from your prior response to a question from a colleague that you do not see going forward with blending as being inconsistent with the future efforts to update Part 61?

MR. CAMPER: No, we don't, no, not at all.

Adding blending to the depleted uranium rulemaking, as I said earlier, would be an efficient way to do it, it would require site-specific performance assessment. It would evaluate waste streams that weren't considered when Part 61 was done.

It would not be inconsistent.

Now, if we do proceed at some point, to reexamine Part 61, in toto, if you will, there are many things that need to be re-evaluated, in fact, a new Environmental Impact Statement would need to be created, and many of the assumptions that were used in Part 61 were very conservative and do not represent operating history at all, but no, we see

no conflict between this approach and what we might ultimately do in Part 61.

MR. WEBER: I think one of the challenges we may experience if the Commission approves the Staff's recommendation in risk informing this approach, is how far can you go in risk informing this rule, staying within the deterministic framework of Part 61?

Because at some point it's going to become unwieldy, because that may lead us to the point where we conclude the better course is to just take a step back and look at the whole regulatory framework under Part 61, which is not risk-informed, as we have used risk-informed in the Commission policy statement.

COMMISSIONER OSTENDORF: Christianne, I'll turn to your slide 15 just for a minute and ask a question. You talk about the assumptions that underlie the waste classification tables, and you're talking a good dialogue and discussion on homogeneity and stability and so forth, and dose considerations, I'm struck that there is

conflicting viewpoints on something I thought was pretty straightforward, such as dose calculations, under different scenarios. So just from a scientific standpoint, that comment, it surprised me that there are differences of opinion, but perhaps, can you comment just very briefly on where your Staff is on reviewing these issues, and how they may be resolved in the perspective rulemaking, on the technical side?

DR. RIDGE: How the different assumptions might be involved?

COMMISSIONER OSTENDORF: Just overall, not any specific issue, but I'm a little concerned that there is very different opinions on -- between stakeholders, et cetera, I'm just curious, at a high level, how might the rulemaking process resolve technical differences of opinion.

DR. RIDGE: Well, I think that what we are envisioning in the rule is to require site-specific analysis, now. In interim guidance, we would give guidance on what a performance assessment for a site-specific intruder dose would

look like. 67

And so, the general bounds of those analyses, and the types of things that would be considered, I think, would be addressed in that, interim guidance.

Now, with respect to differences of opinion about what doses would be.

COMMISSIONER OSTENDORF: Or what your assumptions are or the bounds.

DR. RIDGE: Right. Yes. I think what those appropriate assumptions would be, obviously that would be a process the Staff would go through, listening to stakeholders in the development of that guidance.

But, I think that a lot of the -- I mean, we do have some experience with intruder assessments, so I think some of the bounds of that analyses are things that we would consider and we would consider what -- essentially, by requiring site-specific analysis, a licensee would be making a case for what is appropriate at their site.

And with respect to what types of

scenarios would be appropriate, that is something we would expect to differ from site to site.

And so, yes, those doses may end up being different, but by requiring site specific analysis we would be evaluating those assumptions -- well, the appropriate regulator would be evaluating those assumptions. As we discussed this morning, the appropriate regulator right now is the states. If we were a licensed facility, we would evaluate those assumptions.

But in preparing guidance, we would certainly consider what types of bounds, and the Staff is engaged in that right now, on the depleted uranium rulemaking and interim guidance associated with that.

MR. WEBER: But the differences are driven by different assumptions, as you probably already have tumbled to. And one of the benefits of doing this in an engaging way, very transparent, is to draw out people and have them specifically comment on the assumptions that the Staff thinks is appropriate, versus the assumptions that others

would argue would be more appropriate.

And it's in that process that you can winnow out, where are we consistent, and where are the differences, and what drives those difference in those assumptions. And some will be site-specific, but others can be more generic.

And I think it is that notice and comment process that will, hopefully, get to a better place.

COMMISSIONER OSTENDORF: Thank you. Thank you, Mr. Chairman.

COMMISSIONER SVINICKI: Thank you all for the presentations and the answers you've given, and I think we've covered some good territory here without covering the same ground.

Jim, I think I'm going to return to the -- you were having Q and A with Commissioner Magwood about the resins, and I just wanted to be sure my understanding was correct.

I think one of the complexities there is also that there is kind of a waste generation avoidance, meaning that resins can be removed

prior to being contaminated, to exceed the Class A levels, can they not?

So, in my mind, that's one of the reasons why projecting forward on what happens to different waste volumes becomes very complicated, because there is a lot of individual decision-makers here, and how they can kind of control the generation of their waste, and in addition, to how they might process or blend it in the future.

So I just wanted to be sure that I mention that.

Thinking about this issue, a lot of specifics have been covered, so I may be stepping back a little bit. There is policy, technical and other, but there's philosophical considerations, I guess I would say, as well, and I have this little thought experiment where I said if I laid down in front of you on this table, two large beakers, I'll go with -- I don't want to use the resins because that's got specifics to it. Let's say it was like a contaminated sludge, or something like

that. And, you know, generally the same composition, same concentration, and I told you that one was a product of the generator of that, having engaged in blending and the other had not.

Is there any test you could do on just the physical thing that I gave you that you could identify which of the two beakers was the blended waste?

MR. KENNEDY: Not that I'm aware of, no.

COMMISSIONER SVINICKI: So the philosophical issue here, and I'm comparing a little bit, I had some previous experience with the waste incidental to reprocessing issue, and I think that DOE, in addressing that, of course, had to deal with, in a risk-informed performance-based approach, or space, where you wanted -- where your principal concern is public health and safety and long term isolation from people.

What role do considerations, having to do with not the thing itself, but how the thing came into being, what role do those considerations have, when what you are really looking at is

taking the waste itself and assuring its long term isolation.

I think that is a little bit of -- I'm calling it a philosophical consideration. And again, with waste incidental to reprocessing, while the whole issue is termed that, because it is, you know, the waste itself is a leftover of high-level waste reprocessing.

Is that more dispositive, or should you be looking at the waste itself? So much of the dialogue between DOE and other policymakers about that was the association of those materials with reprocessing led some to believe that their long term isolation should consider other factors then simply just the composition of the waste itself.

So if we don't have a way, when we've got two items other than the disclosures of the processors and generators themselves, of knowing which was a product of blending and which was not, seems to me that going forward with a risk-informed performance-based process, do you still have considerations in that approach,

regarding the fact that one of those beakers is a product of blending and one is not?

In terms of just tracking and inventory and disclosure, would you be looking truly to decouple those two issues and truly be risk-informed performance-based?

MR. CAMPER: Let me start at the end. First, you touched upon attribution.

Our understanding of the process, as being used by EnergySolutions is that attribution is known. The generator of the waste is identified, there is no loss of attribution assignment.

As far as the risk of a blended waste versus a non-blended waste, I think that one thing, certainly, we have heard, is that if waste is blended, and one uses different resins, different sizes, different densities, and so forth, a stratification occurs. That occurs now, otherwise, in waste management.

But, the stratification of the resin beads, due to density, and size, and so forth, in the final analysis, from a risk standpoint, again

going back to the intruder analysis, for an inadvertent intruder at one hundred plus years, that waste is assumed to be homogenous, because the canister is gone, the waste is mixed with other waste, it is mixed with soil, and other waste, as it comes up. So the assumption is that it is homogenous. Therefore, from a risk to the intruder standpoint, there is no difference.

COMMISSIONER SVINICKI: Well, in that specific was why I alluded to the fact that I wasn't going to use resins, because I know, obviously, there is complexities, depending on what type of waste you are talking about, and I was trying to stay at a very philosophical level.

And I think, generally, you're acknowledging that the notion of how something came into being occasionally affects what it ends up looking like. So it affects the thing itself. But, if I does not affect the thing itself, then you really would be looking at just waste inventories, and I think that's why at the end the day the site-specific analysis is the heart of the

Staff's recommendation here.

MR. CAMPER: Let me add -- we agree, clearly, and let me add to that. The same thing holds true in terms of the intruder risk analysis, and the need, we believe, for site-specific performance-assessment, because it holds true for resin beads, near the Class A limit, that have not blended.

That was not evaluated either, but a site-specific performance-assessment, because it is a waste stream that has emerged since Part 61 was created, would be evaluated.

I mean when 61 was created, a number of waste generators were polled, and the Staff identified certain waste streams which were common in practice at the time. Times have changed. Waste streams have changed. And they will change again. Which is why, I mean, we'll be here at some point talking with you about some new waste stream that's emerged 3, 4, 5 years from now.

And that's why requiring that a site-specific performance-assessment be done,

regardless of what the waste is, or regardless of what you call it, this unique waste stream word, it is a term, I kind of wish we had never coined that term, because it's already been misconstrued.

CHAIRMAN JACZKO: I don't think we coined it, did we?

MR. CAMPER: I don't know.

CHAIRMAN JACZKO: I think you coined it.

MR. CAMPER: We might have coined it. If we did, we are really sorry we did, because it is already being misconstrued, I mean there are those of you, as another class of waste, which it's not.

I mean, unique waste stream is a term of art, really, for any waste stream that was not evaluated at the time Part 61 was created, in the Environmental Impact Statement.

So I think that the simple answer to your question is yes, the reliance upon our site-specific performance-assessment will cover the bases.

COMMISSIONER SVINICKI: In terms of regulatory approaches to chemical waste, or to use

the term hazardous waste disposal, are there any regulatory parallels here of what's done? Obviously, this issue, in their case it might be more just pure dilution than actual blending.

Is there anything to be learned there. I generally don't know, what's the construct there. I know that dilution is disfavored, generally, but is there anything, in terms of the hazardous waste disposal, in terms of approaches to this issue?

MR. KENNEDY: A couple of comments about that.

First, we looked at it in detail in 2004, when we examined the issue of intentional mixing of soil, with respect to decommissioning of sites, and we have a 77 page Commission paper on that particular issue, but it includes a write-up on the EPA's position and approach in RCRA, with respect to dilution of waste.

Just a couple of points about that.

First off, I think it's noteworthy that in the hazardous waste program, they don't

postulate an intruder, which is the basis for our waste classification system, and the issue is mixing of waste to lower the waste classification. They don't postulate an intruder, instead, what they do is rely on institutional controls to keep an intruder off the site.

Be that as it may, they do have restrictions on dilution and blending, they don't seem to differentiate between the two.

Generally, I would say, and our Commission paper in 2004 addresses this, they discourage blending or dilution, and they only allow it in a few cases. It is pretty well discouraged.

I would also note, too, that there are no subclasses in hazardous waste, like Class A, B and C, there is hazardous waste, and it's just hazardous waste, there is no subclasses like within low-level waste. So it is also not a direct comparison that way.

But those are the things we learned over the years in studying the RCRA program.

COMMISSIONER SVINICKI: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: I think it has been a very interesting set of questions, I appreciate Commissioner Svinicki's comments on the beakers.

At some point I looked at this issue from a similar perspective, and that is, in a way to say, perhaps comparably, that if nature can't distinguish these things I don't know how we can.

But, as I have heard the discussion, I think there has been lot of interesting points that have been brought up.

I think one of the first issues, I think, as Commissioner Svinicki alluded to, is at what point are people processing, at what point are they blending. A lot of that is definitional and not necessarily physical.

I think right now we don't classify waste by regulation until it's actually disposed of.

So we talked about this idea of waste

being Class A waste that is blended, or Class B and C waste that is blended, but strictly from our regulations, at this point, it's not classified until it is actually disposed of, or shipped for disposal.

So we are talking about processing that would presume what the waste classification is based on some physical processing or the properties we know of.

So a lot of this gets to that concept of when we would define it as waste and when it is not.

So, waste that's processed eventually could get classified as A waste, that may have involved processing with lots of different materials. Again, I don't know if that's blending, at this point.

We would all say, based on the discussions that's blending, but I don't know that our regulations would necessarily call that blending.

The other point, and I think it is an interesting one, came up in the dialogue, and I

think in the presentations, and that is a concern that, from the volume standpoint, we would -- the large volumes we are talking about are effectively those volumes that would affect an intruder.

And I think either Commissioner Svinicki or Ostendorff raised some questions that led to a discussion. And I think either Larry or Mike said it, that we have an issue now, if there's a concern of these large volumes being at the Class A limit, and that not being an analyzed scenario for an intruder, that's just as possible with resins processed in a different way, regardless of blending.

That if those resins are kept until they approach the Class A limit, and then removed, and they are disposed of as a large volume within that context, we may have, in fact, the same consideration now, regardless of what we would do with this blending consideration.

And, again, I don't know that that matters whether it’s blending or whether it’s processing, that's an issue that, perhaps, one way

or another, we need to address.

I do have a couple of questions, but I just thought there has been some very interesting discussions so far.

One just brief question. We didn't touch on this, but the discussion, I think, Commissioner Magwood touched on in B and C, but the Staff would also, I think, based on the paper -- let me ask this: Does the Staff consider the possibility of down-blending, greater than Class C waste? Would that be possible under the approach that the Staff is considering?

MR. KENNEDY: We didn't differentiate GTTC from the other types of waste, and the paper describes the fact that for blendable greater than Class C waste, the numbers we have from the DOE, who's looking into a GTCC disposal facility, that they published in the Federal Register, the amount of blendable greater than Class C is very, very small, so it just didn't seem like an issue.

Now, you could segregate GTCC out, just as a matter of policy, but a strictly risk

informed approach would allow GTCC waste to be blended, and it appears there just is not very much at all. There is a lot of GTCC hardware that you can't be blended, of course.

CHAIRMAN JACZKO: Thanks. That helps. I would, perhaps, echo Commissioner Magwood's comments that sometimes people can become creative and thinking about unintended consequences, as it is right now, to clarify, under the Staff proposal, if there were blendable greater than Class C waste streams, they could be blended.

MR. KENNEDY: We didn't differentiate, that's right.

CHAIRMAN JACZKO: Commissioner Apostolakis touched on this, but I thought I might try and get a get a little bit more specificity. The Staff does talk in the paper about a risk-informed, performance-based approach. And I think, as perhaps Commissioner Apostolakis alluded to, I didn't really ever see the Staff specifically defining what that meant, and again, I think Mike touched on it, that whatever it is, it's a risk-informed approach in a deterministic framework.

I don't know if you could right now give me a little bit more specific about what exactly you mean by risk-informed performance based approach in this context?

DR. RIDGE: I think the heart of it would by requiring the site-specific analysis, and essentially we're considering that as risk-informed, because if the licensee can show that certain intruder scenarios are implausible at their site, because of certain site-specific conditions, then they would not necessarily need to be considered.

So in that sense, I think, that is the heart of what we are considering, the risk-informed, performance-based approach.

Now, as Mr. Camper mentioned earlier, you may want to elaborate on, this is not, this limited rulemaking we are discussing now is not the same thing as the risk informing Part 61 entirely, which would be a separate effort, and Chairman, as you have, obviously, pointed out, this would be a risk-informed piece, and a more

deterministic framework. 85

CHAIRMAN JACZKO: Again, in this context of not being able to distinguish in the end, blended waste from waste that's not blended.

Again, if we could even make that distinct difference. And we look at this from a risk-informed way, and again, taking this assumption, we are doing performance assessments to look at intruder scenarios.

If what were to come it out of that is a recognition that, for a particular class of material, a particular radionuclide mixture, particular concentrations, that what is in a class A facility is not acceptable and additional measures would be necessary in order for that to have safe disposal.

How is that not then something we should apply to all of the comparable material in that disposal facility, whether it is blended or not? And, again, so we are creating this situation which we've got very unique waste streams that will get unique disposal capabilities, but in the

end they are unique by their origins, not by their physical properties, necessarily.

I know there is question and that may have been more of a rhetorical point, but feel free to respond.

DR. RIDGE: The precise wording would depend on the rulemaking process, and exactly what wastes were encompassed would be further iterated during the rulemaking process.

I would just like to mention, though, with respect to any perceived existing safety issue, that Part 61, 61.42 does require protection of an inadvertent intruder.

So if there were a situation today in which there were discovered that a certain waste, blended or not, near the Class A limits, were not save at a facility, that facility would not be compliant with 61.42.

So in that sense, additional requirements would be necessary, and there would be a regulatory basis for imposing those.

MR. WEBER: We are not aware that is

occurring today, and we have confidence that the facilities that are operating are operating safely so this isn't it.

MR. CAMPER: I was going to make that point, too. Just a couple of comments in listening to some of your comments, the issue here -- some of the -- I mean, there is processing that takes place today, with utilities, for example. Again, let's go back to resin beads for sake of discussion.

What we are talking about here is large scale commercial processing designed to change the class of the waste. That is the emphasis.

Mike's point is very well made.

We know that waste facilities today utilize techniques that were not called for or mandated in Part 61, deeper disposal, containerized disposal, liners.

So there's lots of things going on that make disposal today safe. So we're not at all concerned that there's a public health and safety issue.

CHAIRMAN JACZKO: On that point, are those things in license -- I mean, are they in licensed conditions at the state level.

Where do those --

MR. CAMPER: They have been imposed by the states, either in regulation or more commonly in licensed conditions driven by reasons that exist in that particular jurisdiction.

MR. WEBER: Or proposed by the applicant.

MR. CAMPER: Or proposed by the applicant.

MR. WEBER: So they become part of the licensing basis for the operation of the facility.

CHAIRMAN JACZKO: If I could -- and I'm running out of time and I want to keep us moving. And maybe I'll make this just as a brief comment at the end.

As I heard the discussion, I have to admit that as I look at this issue and going forward, I'm not so sure anymore that we can do all of these separate actions without really biting the whole -- I guess, I'm going to give a bad analogy here -- without doing the whole thing

at once, without doing all of Part 61.

That it seem -- as what I'm hearing it seems more and more what just keeps coming up is that our existing regulatory infrastructure is not well suited to what we deal with right now and there's a better way to do it.

And I'm not sure if we're making it better or making it worse by trying to do these piecemeal approaches to -- I think, Larry, as you said, whoever came up with it -- that unique waste stream study.

In the end, they're unique by processing, not necessarily unique by physical characteristics. And that what the end result is that we may just keep -- it's the elephant in the room here, should we do the big risk-informed of Part 61, put all our time and effort into getting that done faster and cover all these things at once?

Again, I'm a little bit over and I don't know that there's -- I mean, feel free if you want to answer briefly.

MR. CAMPER: Well, I mean, as you and I have discussed. I mean, certainly, in the perfect world I would love to do a modernized Environmental Impact Statement on Part 61 and utilize the 30 years of operating experience that we have. That would be an ideal thing to do.

The concern we have, of course, is timing and need.

The depleted uranium issue is before us, the blending issue is arguably before us. Juxtapose that against the amount of time and the level of stockholder involvement that it would take to revise Part 61, it poses quite a challenge.

So in a perfect world, I agree with you totally. It's just a question of timing and need.

CHAIRMAN JACZKO: Well, thank you, I appreciate -- I'm sorry, I'm way over and I was the one who said we need to keep going.

So maybe, Mike, if --

MR. WEBER: Just one brief comment as you ponder your last thought.

CHAIRMAN JACZKO: Yeah.

MR. WEBER: It's not just low-level waste we are talking about here. If you recall, the statutory framework we operate under includes process-based definitions of the different radioactive wastes.

So as we pursue the risk-informed performance-based framework for Part 61, it will ultimately get to the point where, well, why are we distinguishing between this beaker and this beaker because of how they were created, in terms of the protection of the environment, protection of the public, et cetera.

So it will be a challenging frontier for the Commission to embark on.

CHAIRMAN JACZKO: Well, I would just add, if any other of my colleagues would like any other questions or comments for the Staff?

Okay, well, thank you again for that.

(Panel changing.)

CHAIRMAN JACZKO: In the interest of time, I think we'll get moving again and start the next

round of presentations.

We will start with -- this is our panel of state representatives and we will start with Craig Jones, who is the Program Manager for the Division of Radiation Control at the Utah Department of Environmental Quality.

Mr. Jones.

MR. JONES: Good morning. Again, my name is Craig Jones and I thank you for the invitation to participate in this briefing. I am a program manager employed by the Division of Radiation Control in the Utah Department of Environmental Quality.

My presentation on blending radioactive waste is based upon a formal position statement adopted on April 13, 2010, by the Utah Radiation Control Board.

So before I discuss the position statement, it may be helpful for me to explain Utah government structure and the Board.

Second slide, please.

This slide presents the various lines of

authority, beginning with Governor Gary Herbert and continuing to someone like me, a member of the Division of Radiation Control.

So with respect to this slide, I will be occupying a position in the bottom box, where Governor Gary Herbert is at the top.

Utah law creates within state government a Department of Environmental Quality, DEQ.

The Executive Director of the Department is appointed by the Governor with the consent of the Senate.

And so you can see the box for the Department of Environmental Quality directly beneath the Governor and a line connecting to the Executive Director of the Department of Environmental Quality.

Utah law also creates various policymaking Boards within the Department. The Radiation Control Board is one of five policymaking boards.

And that is the box on the slide that is positioned to the left of the one for the

Executive Director of DEQ.

The Radiation Control Board is comprised of 13 members, one of whom is the Executive Director. So the horizontal line between the Executive Director and the Board is to reflect that association or connection between the two.

The remainder of the members of the Board are appointed by the Governor with the consent of the Senate.

Utah law also says that the Executive Director shall appoint an Executive Secretary with the approval of the Board to serve under the direction of the Executive Secretary.

And that box is near the bottom of the page, not exactly, but it is labeled Executive Secretary and Director of the Division of Radiation Control.

Historically, the Executive Secretary of the Radiation Control Board has also been the Director of the Division of Radiation Control.

The Radiation Control Board has powers that include making rules, requiring license

submissions, establishing programs, requiring inspections, issuing orders, holding adjudicative hearings and issuing position statements.

On April 13th, 2010, the Utah Radiation Control Board adopted a position statement on down-blending radioactive waste.

The statement contains two points that I believe serve as background information, and three specific statements regarding down-blended radioactive waste.

The term down-blending or down-blended is jargon that is not defined in SECY-10-0043. And I understand the intent is to describe the mixing or blending of waste with Class C or Class C concentrations with a Class A waste such that the resultant waste remains Class A waste.

Third slide, please.

I'm now going to give the first background point.

The Utah Radiation Control Board recognizes that down-blended radioactive waste does not pose any unique health and safety issues

to the public that are not observed in other classes of low-level radioactive waste.

And I would like to note that this point has also be asserted by the Division of Radiation Control Director.

Moving on to the next slide, please.

And with respect to the second background point, the Board is also aware that down-blending may appear to some persons as a process to circumvent Utah law, which prohibits any entity in Utah from accepting Class B or Class C low-level radioactive waste for commercial storage, treatment or disposal.

Utah Governor Gary Herbert has also publicly stated this point of concern.

Next slide, please.

In order to maintain public confidence in the regulatory process and protect against unforeseen hazards, the Board issues the following position statements regarding down-blended radioactive waste.

The Board is opposed to waste blending

when the intent is to alter the waste classification for purposes of disposal site access.

It may be that Option 3 of the April 7th, 2010, SECY paper captures the essence of this position.

Point Number 2: Dilution of radioactive waste with uncontaminated materials should be explicitly prohibited.

I believe in the SECY paper the Staff adequately differentiates the term "blending" from "dilution."

And finally, with the last slide, please.

Current guidance documents dealing with concentration averaging and mixing should be updated to address the current understanding of the possible down-blending issues.

Important matters dealing with waste blending, such as prohibition of certain practices currently in guidance, should be put into regulation.

And that concludes my remarks. Thank you.

CHAIRMAN JACZKO: We will now hear from Susan Jablonski, who is the Director of the Radioactive Materials Division at the Texas Commission on Environmental Quality.

Susan.

MS. JABLONSKI: Good morning, Chairman, Commissioners. Thank you for having me here to talk about state's perspective dealing with blending.

First, I would like to upfront say that the discussion on maximum flexibility that was held earlier we're very interested in and that's going to be the focus of my discussion today.

The Texas rule was developed after the passage and in response to the low-level waste policy acts that made states responsible for low-level waste generated within its borders, and part of this pursuit of having a system in place for waste management and disposal solutions within the State of Texas.

At the same time, Texas took a deliberate and progressive approach to actually developing a rule to look at alternatives accompanied by dose analysis for short-lived radioactive waste, allowing Texas licensees that generated waste to have other alternatives for disposal.

And particularly, I cite the 300-day half-life rule in Texas that that has been mentioned before in front of the Commission.

The policy behind our dilution rule was to ensure waste going to any Texas facility would be known and that intended application of exemptions which are promulgated by rule under our statute and waste classification would not be circumvented in any process.

The Texas so-called dilution rule was part of an overall policy approach to be deliberate and transparent in an attempt to create an acceptable policy base to manage radioactive waste. And it's has been in place for almost 30 years in our state. It has been an effective deterrent. There's been a discussion

about relationship with the RCRA rules, and that's the basis of the rule in Texas.

And it's been a deterrent for both dilution and blending and no distinction was made in the rule at the time that it was developed in the '80s.

And I think some of the early papers with the NRC also site to no distinction between dilution and blending at the time these policies were developed.

To potentially force a change in Texas policy now, as we're attempting to make further strides in the disposal of low-level radioactive waste within our state, may negatively affect both the confidence of our public and the resolve of our policymakers to come up with solutions that work for our state.

As a state, we've been proactively working toward safe management and disposal solutions. Texas long-standing and known policy approach that includes control over dilution and blending has gained the confidence of those both

in our state and our policymakers to step forward in coming up with progressive solutions. We're afraid that unintended consequences might result from any rulemaking that we might have to adopt.

Thank you for the opportunity.

CHAIRMAN JACZKO: Next we'll hear from Edward Nanney -- is that correct?

MR. NANNEY: Yes.

CHAIRMAN JACZKO: Who is the Director of the Division of Radiological Health of the State of Tennessee.

MR. NANNEY: Good morning, Mr. Chairman, members of the Commission. Thank you for the opportunity to present our views on this issue here today.

I represent a state that hosts several licensed processors of low-level waste, which conduct a variety of processing operations for a broad spectrum of low-level waste generators from all across the nation.

Predominant among those generators are the nation's nuclear power stations, themselves

licensees of the NRC.

As the Agreement State agency in Tennessee, the Division of Radiological Health in the Department of Environment and Conservation, licenses the two waste processors that are at the center of this issue of blending.

EnergySolutions and Studsvik have both previously presented their cases and will do so again later today. Through differing business models, these processors offer different technological and philosophical approaches to solving the same problem.

NRC staff has addressed in the blending paper various advantages and disadvantages associated with these competing processes. We have chosen not to endorse one process over the other.

Our only interest and sole responsibility lies in protecting the workers and the facilities that we license, the health and safety of the public and the environment of Tennessee.

EnergySolutions approached the division with preliminary plans for developing a methodology to blend ion exchange resins and similar waste materials having varying radioactivity concentrations into a homogeneous mixture, which it hopes to dispose at its licensed disposal site in Clive, Utah.

Those discussions have centered on blending and not dilution in the context that these terms are used by the NRC.

During our initial discussions with representatives of EnergySolutions, it was clear that they wanted the division to license them for conduct of this activity on a commercial scale.

They represented -- they presented a rationale to support the position that this was already within the scope of the branch technical position on concentration averaging and encapsulation.

The Division was not convinced that this was the case and told EnergySolutions that we had no interest in licensing a process that

lacked commercial viability, by which we meant that it must have both a customer base to support it and a pathway for disposal of the processed waste.

The Division requested that EnergySolutions pursue confirmation regarding both of these viability aspects of their proposal.

We also authorized them to do some limited R&D work to identify any technical obstacles to producing a low-level waste form acceptable for disposal.

It was made clear that the satisfactory resolution of each of these issues was prerequisite to any consideration of authorization for commercial operation.

Since the NRC's reactor licensees constitute a major customer base for Tennessee's low-level waste processing facilities, whether they will be allowed by the NRC to utilize the services of offsite waste processors to blend low-level waste in preparation for disposal is key to the first viability issue.

That was not at all clear from our reading of the branch technical position.

We note that subsequent NRC correspondence has confirmed the applicability of the branch technical position to offsite processors, but that can be undone in a moment, depending on what action the Commission takes regarding the various options presented in the blending paper.

Regardless of which option the Commission chooses, the division would like the NRC to clarify those aspects of its position that may affect the ability of its reactor licensees to utilize blending as proposed by EnergySolutions.

That would provide part of the answer to the question of commercial viability.

In regard to the issue of a clear pathway for disposal of blended waste, the division notes the staff recommendation in section 4.5 of the blending paper, regarding how the current blending proposal might move forward, pending completion of whichever option may be

selected by the Commission.

Having a viable pathway for disposal of the resulting waste, as well as clarity and finality in the NRC's position is critical to our goal of protecting public health and safety and the environment.

In Section 8.0 of the blending paper, NRC Staff noted, regarding option one, "Maintaining the status quo, this option would lead to inconsistent treatment of low-level waste rad waste that could vary according to where the waste is generated processed and/or disposed.

"Waste blended and classified in accordance with the requirements of the state in which the generator is located may not by accepted for disposal at a site in another state that has adopted different waste classification and blending criteria."

End quote.

The Division notes that the foregoing situation ascribed to option one is not unique to that option, in fact, something very similar to

that is a reality of life that waste processors deal with on a daily basis and is something that may well continue regardless of the option selected.

Tennessee's waste processors receive, process and either return or dispose low-level waste generated in both sited and unsited states and compact regions.

In each case involving disposal, the waste processor must ensure compliance with applicable, often varying and sometimes inconsistently applied disposal sites, state and compact requirements regarding waste forms and import/export policies.

Decisions that are made in those states and compacts, as well as those made by the NRC, have a profound impact on waste processing in Tennessee.

The sited states and compacts bear the primary responsibility for implementing requirements for disposal sites within their jurisdiction. We believe those requirements

should be based on considerations that serve the best interest of public health and safety. However, it is unclear in some cases how existing requirements are connected to that goal.

For example, we agree with the NRC's stated view on the reason and timing for classifying waste for disposal. However, some who have commented on that, in regard to blending issues, seem some to basing their rationales on criteria other than scientific analysis of factors affecting health and safety.

For EnergySolutions blending proposal to move forward, a low-level waste disposal site must be willing and able to receive those blended wastes, and there's only so much that the NRC can do to influence that course of events.

While it is not the responsibility of the NRC to standardize all requirements for low-level waste disposal across the nation, the Division believes that the NRC can play a key role in improving uniformity through this effort to clarify its position on this issue.

The Bureau of Environment in the Tennessee Department of Conservation has a statement of core values, which includes, in part, the following: "We strive to solve problems through a scientific and evidence-based approach that respects diverse opinions and provides opportunities for input".

We commend the effort of the NRC to bring clarity where it is lacking, and we encourage NRC to pursue this effort in a manner consistent with these core values.

We believe that the NRC has appropriate resources processes and trained staff and is the right agency to address this issue.

We concur with the NRC's policy of moving toward risk-based performance -- risk-informed performance base regulation and are ourselves moving in that direction.

While making this decision on the basis of scientific analysis of the evidence, through a rulemaking process that allows for public input under the National Environmental Policy Act, the

NRC will provide both a sound rationale for the decision and a basis that can lead to increased national uniformity.

To summarize, two competing processes and technologies are at the center of this blending issue; the choice of which or both or neither of these technologies will be proven viable lies with the Commission and its licensees, as well as with the sited states and compacts and their regulatory agencies.

To the extent that the resolution of this blending issue is grounded in a well-reasoned discussion of the associated health and safety considerations that underlie the Commission's decision, it is our hope that cited states and compacts may find encouragement to conform their disposal requirements towards those same health and safety goals.

I thank you again for the opportunity to present those views.

CHAIRMAN JACZKO: Thank you. We'll now turn to Mr. Allard, who is the Director of the Division

of -- or the Bureau of Radiation Protection at the Pennsylvania Department of Environmental Protection.

Mr. Allard.

MR. ALLARD: Thank you, Mr. Chairman. Commissioners, Mr. Chairman, on behalf of Governor Rendell and Secretary Hanger, as Bureau Director and one of the Commissioners for the Appalachian Compact, it certainly is a pleasure to be here with my state colleagues and industrial colleagues to discuss this issue of blending.

Slide 2, please. Just in my brief time, I just have a few introductory remarks.

I want to present I think some interesting data from our Appalachian Compact on Class A/B/C waste that we generate and just to outline our stated position that we formerly commented on the blending issue. And I will be available for questions too.

Slide 3, please.

Commissioners, I've been in the field since the mid-'70s. I've worked in medical,

academic, industrial, government and state oversight. Been with the state over 11 years. I've personally overseen the packaging of some 20,000 packages of low-level waste in my career.

I think with the situation, we have ten compacts, ten independent states, we've spent over a billion dollars in low-level waste siting over the past 25 years.

I think it's fair to say, from a generator and a Government perspective, the access for commercial disposal of low-level waste is becoming increasingly problematic.

I think Jim Kennedy touched on this. I think one of the clear impacts -- early in my career we had a Moly generation in Tuxedo Parks, Squibb had a production reactor in downstate New York.

I think, clearly, it's because of the low-level waste situation that we don't have Moly-99 production in the U.S.

And discussing this with my colleagues, physician colleagues, nuclear medicine colleagues, this is directly -- it's a huge impact and direct

impact on patient care and medical outcomes.

I think we're going to be -- we don't really address, globally, the low-level waste issues. I think in the next five, ten years, Congress, states, Commission, NRC, EPA, DOE, I think we're going to be in a real crisis mode.

Slide 4, please.

This is -- we keep a rolling average of the past 20 years of low-level waste generation in the compact.

As you can see, the first slide here is cubic -- volume cubic feet of low-level waste that we generate. You can see Pennsylvania with some of the most complex decommissioning in the country of material licensees, we generate the far vast majority of low-level waste in the compact.

Typically, it's 50,000 to almost a half million of cubic feet.

Interestingly, 95 to 98% of the volume is Class A waste that comes out of our compact in our state.

The point here is, I think even if 10 %

of the waste was homogenous and suitable for blending, we would have adequate Class A volume for blending.

Next slide, please.

The slide I present here on page 5 is the activity generated in the compact. Again, with Pennsylvania, with -- second to Illinois with nine operating reactors, we generate the vast majority of radioactivity in the compact. Specifically, resins, activated components from reactors and such.

And you can see, without access to Barnwell, we pretty much dropped off the map here in the end of 2008. Our 2009 data is still under review, but it's greatly reduced.

Again, typically, 95 to 98% of the activity has been coming from the power reactor side, the spent resins and activated components. Typically, less than a hundred -- 10,000 curries to almost 500,000 curries, about half a mega currie.

Next slide, please.

Just to restate our position on blending, I really like Commissioner Svinicki's thought experiment. Being a physicist, I did a little myself and if we look at a low-level waste site that has certain performance designs, waste acceptance criteria, institutional controls built in to the limit the public dose, to limit the intruder dose, does it matter how we get to that Class A waste?

The situation is such as you've seen in the previous graphs, we don't have access for our Class B and C waste. Our position is safe disposal of Class B and C waste is preferred to storage. Storage invokes issues of packaging, shielding, inventory, inspection.

We really don't think that's ALARA as far as workers that have to deal with this waste.

We -- interesting discussion on the dilution versus blending.

Our view, you know, dilution, we took a strict sort of chemical view, you know, where you're talking uncontaminated material and mixing

it with contaminated material.

Our laws actually prohibit that sort of thing. We're viewing the blending of Class B or possibly C waste with A to get the Class A waste as an acceptable scenario.

However, having said that, we do have concerns, the attribution issue, the tracking of low-level waste by generators is a must.

We have in our statute triggers that if a particular state exceeds a certain percentage of activity or volume, they have to start looking and siting the low-level waste site.

So we need to maintain that tracking and attribution.

Personally, I think, you know, we've just become an Agreement State two years ago. It was one of our licensees that triggered this whole discussion, a processor out in western PA.

We think this is really sort of a policy issue and can be done through regulatory and existing regulatory and license condition framework.

Having said that, we would want to make sure that the generators that there's really tight oversight by the regulatory NRC Agreement States and we have to really be vigilant to watch that.

Listening to the whole depleted uranium scenario, having a great deal of experience in my private sector career and in my DOE oversight years, I think we need to decouple this DU issue.

Looking at the depleted uranium, in my view, it's more akin to the RCRA C type scenario. If you look at the derived air concentrations, the ALIs, the annual limits of intake, for uranium, it's not the radiological considerations for depleted or natural uranium, it's really the chemical toxicity.

So I think we're really into a scenario with depleted uranium that, you know, we need to look at this as a RCRA, RCRA C type waste. It takes millions of years for that activity to grow in the radium.

At this point I'm out of time. I want to stay on time. And I appreciate your time.

The next slide, I just wanted to summarize on page 7, the Commonwealth is not opposed to blending.

I really appreciate your looking at for the states and other stakeholders for input, and I just wanted the formally thank my staff, Rich Donati and Jim Barnhardt, who really do all the work in the low-level waste for Pennsylvania.

Thank you.

CHAIRMAN JACZKO: Thank you for those presentations.

Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

Looking at the Utah Radiation Control Board position statements, the Board is opposed to waste blending when they intend to alter the waste classification.

But then, the two slides earlier it said that the Board recognizes that down blended

radioactive waste does not pose any unique health and safety issues to the public.

So, are these two statements inconsistent? There was another consideration that came into the second statement?

MR. JONES: I believe that it represents that there were Board members with differing points of view. It recognizes from the scientific perspective that down-blended radioactive waste does not pose any unique health and safety issues.

Now, with respect to opposing points of views or other important stakeholders, there is a concern about taking waste at a high concentration, mixing it with waste at a low concentration such that the resultant waste is still Class A and can come to Utah.

The concern is that state law prohibits the waste, the disposal of Class B and Class C waste.

So, in the minds of the general public who are not familiar with or may not care that waste classification occurs at the time waste is

sent for disposal, the only important point is that the high concentration waste that might be Class C is blended and comes to Utah.

And I think the second -- the first bullet for what the Board is opposed to represents that perspective.

COMMISSIONER APOSTOLAKIS: So, the extra consideration in the opposition was a public perception?

MR. JONES: Yes, I believe that's a fair summary.

COMMISSIONER APOSTOLAKIS: Which was very interesting, because Ms. Jablonski also mentioned public perception.

This is very interesting to me because it brings up the perennial debate whether we should regulate on the basis of scientific fact and theories versus what the public thinks the risks are. And I guess the states are maybe more sensitive to it. Federal agencies, perhaps.

Although, we are sensitive to public perceptions, too.

I find it very interesting, though, that public perceptions play such a major role in the state positions.

As you know, the Staff is favoring Option 2,that would require site-specific analyses.

I presume that the states are not very familiar with this type of analysis; is that a correct assumption?

I mean, would you need a lot of help to do it? Do you have the resources to do it?

MR. ALLARD: I think it's an interesting question, and not having a site, we wish we had a site, but we suspended our process in 1998 for siting, because we had a voluntary process. We had a lot of "not in my backyard."

But we stand ready to restart that process, if needed, and I think the forcing function might be reactor decommissioning in 20 years.

I think it would be interesting -- as I was listening to the presentation, it would be

interesting to hear from Utah and Texas, would you have to go back and reanalyze?

COMMISSIONER APOSTOLAKIS: Do you think you would need extra help or guidance, or is that something you could do? Or is that something, in principle, you agree with, that it should be done?

MS. JABLONSKI: I think for Texas, we would have the resources to do site-specific analysis. We're looking at that. It's actually a requirement in other parts of our rule. So it's not inconsistent with what we're doing in other ways.

And we do have the resources and we're currently engaged in that, since we have just gone through a licensing process.

COMMISSIONER APOSTOLAKIS: Good.

MR. JONES: With respect to the state of Utah, I'm going to start with the unique waste stream of depleted uranium that would require a site-specific performance assessment.

And for what may be happening with the assessment or review of an assessment for that

waste form, the State of Utah has made contact with the Staff of the Nuclear Regulatory Commission for technical assistance.

So at this point I would presume that a similar request may be made.

The outcome at this point is unknown to me.

COMMISSIONER APOSTOLAKIS: Thank you.

CHAIRMAN JACZKO: Commissioner Magwood?

COMMISSIONER MAGWOOD: Thank you, Chairman.

I just want -- I want to make sure I have clarity in my own mind as to what would happen, so I want to ask both Utah and Texas to give me a little bit more of their view, because I'm sure you have thought this through step-by-step, what would happen were you to wake up in the morning and read on the internet that the Commission has voted in favor of option 2 and option 2 eventually became a rule.

What happens -- we'll start with Texas. What happens next in Texas? What is the first thing that happens?

MS. JABLONSKI: Well, the compatibility of that, of course, would be the center of how we respond, since we currently have a rule in place, the repeal of that rule would be necessary in order to conform.

At least that is our assumption at this point, given the nature of the rule, that's a pretty broad scope in our state.

So we would have to repeal that rulemaking and initiate rulemaking to become compatible.

And, you know, to address other Commissioners' comments, I think you're hearing from disposal states or hopefully Texas leading to a disposal state, that when we balance these things in public policy, when you move forward with an actual disposal site, yes, there is a scientific consideration, but there's also, definitely, the public and policymakers' considerations that are part of those decisions.

And they're not made in a vacuum. We don't only look at -- it's just the nature of the

beast in siting disposal radioactive waste disposal sites in our country.

And as you move forward, their anticipation of both the policymakers that have chosen to accept moving forward on the site and the public, that there's a certain framework that you're living under.

And to change that framework for us, something that has been in place for 30 years, would be a step outside of what the anticipation is.

And so it would take a re-education and, you know, we would be splitting some hairs. I mean, we revisit old issues in our state that might change the outcome of acceptability.

I can't predict what that raises, but, you know, it is -- there will be some consequence how it will play out. It's unclear exactly.

COMMISSIONER MAGWOOD: Thank you. Utah, same question.

MR. JONES: The Utah process is for the staff of the Division of Radiation Control to

prepare a rule for consideration by the Utah Radiation Control Board. And that is because the Board is vested with the statutory authority to make rules.

As mentioned by Susan, I suspect compatibility will be an issue. And I can tell you that at the time discussions between Staff and Agreement States took place, it was requested that there be flexibility for Agreement States to deal with the issue of compatibility.

COMMISSIONER MAGWOOD: Thank you very much.

Let me just ask Utah -- excuse, Tennessee, if you -- Mr. Nanney, if you -- you made some comments in your presentation that I get the impression the discussion about whether public perception should be weighed in versus scientific fact is something that, from your perspective, is a little problematic.

And I wonder, as you hear what your colleagues in Utah and Texas have been saying, how do you think this will affect the consideration of whether to approve these facilities; whatever the

Commission does in your state, when you hear that your colleagues with the disposal sites or potential disposal sites are -- you know, have this approach?

I would just like to hear your thoughts about this.

MR. NANNEY: Well, I certainly empathize with Susan and Craig's situation. And I don't mean to imply that those same considerations don't come into play in Tennessee. They certainly do, but I would say to a lesser extent.

We started this, in a sense, if you will, by EnergySolutions coming to us. And they made the presentation that they can do it under the existing branch of technical position, but we weren't sure about that, which is why we encouraged them to talk to the NRC.

We would like to see perhaps more uniformity, before it can be accomplished across the nation and the way issues such as this are handled.

The major customers, you know, of our

processors are NRC licensees. And, as I said, NRC is positioned in the proper place to be able to consider all these issues under the NEPA, you know, where you look at all the various alternatives and you're not looking at it just from the standpoint of your state's own needs.

I think it's the right position for this decision to be made. And Tennessee looks forward to working with the NRC in resolving, moving forward with this issue, and we would like to do that in a manner that there is no problem with consistency or compatibility between our regulatory agencies.

We don't currently have any and don't anticipate having any over this issue.

COMMISSIONER MAGWOOD: Thank you very much.

Chairman.

CHAIRMAN JACZKO: Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Chairman.

I want to follow-up with my colleague's line of questioning dealing with, you know, if

this rule were to go forward, as the Staff has recommended, and getting back, Susan, to your comments on flexibility would also -- both you and Craig talked about the compatibility as has others.

Let's just -- one of the things I saw on the -- just a very quick review of some of the compatibility requirements here that the NRC has, there's a transboundary implication notion of some -- that implies some consistency from one state to the other.

And recognizing that you have compatibility A, B and I think there's a C down there, of various degrees -- and I'm not that that familiar with them, but there's a scheme of more or less rigidity in the compatibility.

Let's just assume, hypothetically, that in the compatibility determination, that you have more flexibility. That was where the rule ended up.

From the States of Utah and Texas, and then I'll also get to Tennessee and Pennsylvania. I'm just going to start out with y'all two first.

What problems would be created in your two states if you had -- if Utah saw that Texas had more flexibility and maybe took a little different path that you had not engaged in in your state; would that create any interstate problems, from your perspectives?

MR. JONES: I'm not certain that it would create problems from an interstate perspective.

It may be considered as a state's rights issue to determine what compatibility level is appropriate for the specific needs of the state.

And beyond that, I'm not in a position to describe what the Radiation Control Board in Utah may decide to do with respect to compatibility.

I think I would like to note that the position statement that I've been speaking from this morning was approved on April 13th.

The SECY paper that is up for discussion was approved on April 7th. And so there was a time delay before it was received in the State of Utah. As a matter of fact, I believe we received

it on April 15th.

So I need for you to know that the Radiation Control Board has not revisited it or looked at the issues as described in the SECY paper.

COMMISSIONER OSTENDORFF: Susan?

MS. JABLONSKI: I think I agree with Craig. I mean, I don't see any interstate issues, and it is a matter of states being able to go further, and I'll give you an example.

In our own statute, we require additional barriers associated with low-level waste facilities that are above and beyond what are being used in Utah.

And it's something that our legislature and policymakers decided was important for the state, to give credibility and increase public confidence in moving forward.

So we've done those sorts of things as a state in order to move forward with a regulation and the possibility of siting a site that would be acceptable to our stakeholders.

So, again, I think this is, for us, looking at the unique set of stakeholders for our state, as we look forward for solutions.

COMMISSIONER OSTENDORFF: Thank you.

Any comments from Tennessee or Pennsylvania?

MR. ALLARD: I think on the compatibility issue, I think that's something that actually the Commission and the Staff set for the Agreement States.

So we sort of -- we've got this matrix, depending on what the regulation is, we've got the --

COMMISSIONER OSTENDORFF: No, I understand. I'm just trying to understand what the implications are of whatever the final NRC determinations are.

MR. ALLARD: I think from Pennsylvania's perspective, if our licensee came to us with an amendment to blend Class B down to Class A, we would want to ensure that we weren't in this orphan waste scenario and that they did have

acceptability, say, Utah, for the waste.

We know orphan waste, we have actually orphan waste stored in Texas for our safety light site that's orphaned because of the byproduct material and the radium; it didn't meet either criteria for getting into Barnwell at the time or Utah.

So we would want to make sure that it was acceptable.

COMMISSIONER OSTENDORFF: Thank you. Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Svinicki?

COMMISSIONER SVINICKI: Thank you all for your presentations and your involvement in this process and this issue, I really appreciate it.

Mr. Jones, on one of your slides you had mentioned that you would prefer to see prohibition of certain practices that are currently in guidance put in the regulations.

Could you describe or give some examples of the -- what you would prefer to see prohibited specifically in regulation?

MR. JONES: Well, I think what I was referring to was the guidance documents dealing with concentration averaging and mixing should be updated to address the understanding -- the current understanding of the possible down-blending issues.

And beyond that, I'm not prepared to offer other specifics.

COMMISSIONER SVINICKI: Mr. Allard, again, it's a pleasure to see you again.

MR. ALLARD: Thank you.

COMMISSIONER SVINICKI: I think I met you when I visited. I was in Pennsylvania visiting Three Mile Island.

You mentioned the -- well, of course, the Commonwealth of Pennsylvania has the second highest number of nuclear power plants, after Illinois, you mentioned that.

And I'm aware, correct me if I'm wrong, that there are now -- given the lack of access to B and C disposal capacity -- that there are now proposals for a licensee perhaps to consolidate

storage at one of their facilities. And so you're looking at some transshipment and other things of waste.

Is that -- I'm aware of one incident, but is that something you see more commonly even in the medical and industrial -- within a state you see people wanting to consolidate their waste?

MR. ALLARD: As far as the material licensees, we've not seen that yet.

We're just, again, two years as an Agreement State. I suspect there are some medical sources, the old Cesium-137 brachytherapy sources. I suspect there are a fair number of orphan -- not orphaned, but disused sources out there. And that may be a necessary scenario.

On the reactor side, absolutely, we see our five nuclear power plant sites, all of them except for one have storage capacity through the next 20 years, with license extension, except for one. And our view on that, when we've talked to the utility about it, as far as potential dose impact to the public, we felt, you know, where the

movement would actually be that direction anyway, so we be would be going from -- Limerick is the plant into Peach Bottom and potentially storing the waste there.

We don't have a problem with that, if they have capacity.

COMMISSIONER SVINICKI: And I remark upon it, I guess, thematically, because when there is -- you mentioned the overall preference towards disposal versus long-term storage.

And so I think it's just rational that you begin to see some consolidation of storage sites. And at that point, then, you begin, in some cases, to accumulate some significant quantities in one location, and it may drive, at the state level, you know, additional consideration of just the impacts of doing that. But, again, if there's not disposal capacity, options are limited.

MR. ALLARD: Right.

COMMISSIONER SVINICKI: Okay. Thank you.

MR. ALLARD: Thank you.

COMMISSIONER SVINICKI: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Start with you, Mr. Nanney, you talked a little bit about the need to have clarity.

Do you think -- absent any change from the Commission, any action, do you think there's clarity about whether or not you would go ahead and approve EnergySolutions' proposal, based on some of the factors that you said, do you think there's a clear position right now about where the NRC stands with regard to blending?

MR. NANNEY: Well, we've taken the position all along that we need a path to disposal.

I mean, that is a certainty, before we would want to authorize a production on a commercial scale of these types of waste.

We have been looking, watching what the Commission does over the last several months, with the various public meetings and stakeholder meetings, and we've actually held -- held back a

particular license request. And I think most everyone's aware of that.

And the reason for that is not so much that there are technical issues with moving forward with that, as we were hoping that -- that we might see some clarity early on, as to which direction the Commission was going.

We, I think, have seen that sort of clarity. And the reason we're holding back was if it seemed in short term that this option was dead in the water to start with, there would be no reason for us to move ahead with that authorization.

CHAIRMAN JACZKO: Let's --

MR. NANNEY: But seeing --

CHAIRMAN JACZKO: I'm sorry.

MR. NANNEY: But seeing that we're moving -- I mean, the Staff's recommendation has been toward option 2, and option 2 would lead to, probably, EnergySolutions being able to go forward.

CHAIRMAN JACZKO: And I would ask you to

explore some broader issues.

One, I think the bottom line is if we were to do Option 2, that's not an immediate solution. Rulemakings take some time. This would be a rulemaking I would expect, if it does get included with the depleted uranium rulemaking, I think Commissioner Magwood asked a very good question in the beginning about what that might do and whether that may add baggage to another activity that, you know, may cause that one to slow down.

It's likely that any rulemaking in this area would take at least several years, I think, at least.

Given that, would -- do you believe right now that the branch technical position and the Staff's letters back and forth about what the branch technical positions mean, gives you clarity on what the current position is of the Agency?

MR. NANNEY: Well, the current position, I think certainly it does.

CHAIRMAN JACZKO: Okay.

MR. NANNEY: But we're still looking at which direction is going. I mean, I don't think any of the licenses -- I don't think EnergySolutions wants to go out and create waste that -- start up a process, let's put it that way, that will only be good for a short while.

I mean, if we have a path to disposal and the Commission and its licensees are not clearly adverse to proceeding down this road, I would see that we could move forward with that pending some rulemaking. But, of course, that's not -- that's the policy decision that we're hanging on right now as the State of Tennessee.

CHAIRMAN JACZKO: Thank you, I appreciate that.

Susan and Craig, I might ask you a question.

Now, the state of Texas is in the process of having a new facility come on line.

That's certainly within the Texas compact, which I think is Texas and Vermont would take A, B and C waste. My understanding of that

facility.

MS. JABLONSKI: That's correct.

CHAIRMAN JACZKO: To question -- I think an open question of whether that might ever be open to a broader group of generators beyond those two states, beyond the compact.

Do you think there's a difference in terms of how Texas then would view this issue of blending versus the state of Utah, which -- I would ask both of you to comment on this -- in which you specifically have a state prohibition against disposal of B and C waste; not necessarily a state prohibition against blending, but a state prohibition against disposal of B and C waste.

Do you think that there's a difference there, or is it ultimately the same kind of concerns?

MS. JABLONSKI: I think the outcome is different, but, you know, the concepts are similar.

You know, we have always look at a full service facility for the Texas compact. It was

never a consideration to only take Class A waste as Utah approached the problem.

And so, you know, there is dialogue going on right now about the potential for added capacity beyond what was envisioned in this initial license.

And so that's part of the dialogue, and this too will be part of that dialogue as we move forward, I'm sure, of how that does or doesn't impact decisions that are made by both the Texas compact and the State of Texas.

So I think they're similar. I don't know if it changes my perspective that we can do these things independently and still move forward.

CHAIRMAN JACZKO: Mr. Jones, I don't know if you wanted to add.

MR. JONES: There may be some similarities between Texas and the State of Utah, but there would be a noticeable difference with respect to compact issues. The sited facility in Utah, while we are in the northwest waste compact, is not known as a regional facility.

So that's a notable difference.

Otherwise, I think there are some similarities between the programs.

CHAIRMAN JACZKO: Any other questions?

Well, again, thank you for your very informative presentations. Appreciate you being here.

We will now begin our final stakeholder panel, starting with Tom -- is it Magette or Magette?

MR. MAGETTE: Magette.

CHAIRMAN JACZKO: Magette, sorry. Who is the Senior Vice President of Nuclear Regulatory Strategy at EnergySolutions.

MR. MAGETTE: Thank you, Mr. Chairman, Commissioners. And thank you for the opportunity to be here today to talk about the blending of low-level radioactive wastes.

On my second slide I've listed what I consider to be the key issues relative to this topic, first and foremost among them of which is safety, protection of public health and safety,

protection of the health and safety of our workers, protection of the environment.

Also, I think it's important to note that blending is simply one of many tools used to manage low-level waste today by generators and processors across the country.

And as Commissioner Magwood alluded, when I refer to blending, generally what I'm talking about is ion exchange resins from the liquid waste processing systems from nuclear power plants.

So why is it that people want to blend these wastes? Well, I've listed some of the issues on the third slide.

Essentially, there are a few. They come down to managing dose. Also improving the operational efficiency of the power plant. Cost is important, whether it be managing the cost of the liquid waste processing system itself or minimizing the number of rad waste shipments that you might have to make.

It's also important to help minimize the generation of waste that you can't ship offsite,

because if you can't ship it for disposal, then you have to store it. And interim storage onsite imposes its own burdens, both in terms of dose and cost.

What EnergySolutions would like to do is to be able to provide this service offsite for our utility customers, where we think we could bring increased efficiency, both in terms of dose savings, as well as cost.

I would like to turn now to the topic of waste classification, which has received a lot of attention in this proceeding.

To Commissioner Svinicki's two beakers, what I would say, as the operator of two low-level radioactive waste disposal sites, is that we don't care what the waste was, we care what the waste is.

And as the Staff has pointed out in SECY-10-0043, waste is classified in order to ensure it's safe disposal.

I would add to that that you can't classify waste properly until it's in its final

form for disposal and until it's in its final burial container. And that's because processing of any kind, whether it be blending or incineration or compaction, dewatering, thermal processing, can result in a change in the isotopic concentration in the waste.

The graphic on the next slide I think is a good illustration of how a reduction in volume or mass or both can result in even a change in waste classification.

These are drums of low-level radioactive wastes that were compacted at our Bear Creek facility in Oakridge, Tennessee.

If you look at the two in the foreground, they could both have the exact same activity and be different waste classes. The one on the right can be a drum of Class A waste, the one of the left could be Class B waste, merely by virtue of the fact that its volume is about half the one on the other side.

On our next slide I summarize what EnergySolutions submitted to the staff in

response to the Federal Register Notice on this topic.

At that time what we said was that we believed that the guidance was adequate and that blending was permitted, that the regulations were sufficient to protect public health and safety.

And our recommendation was that Staff need only to collect the guidance, particularly from the letters of late 2009, into a formal guidance document; for example, a regulatory issue summary, and issue that.

Since that time, the Staff has completed and issued SECY-10-0043.

We have reviewed that document, we find it to be, as the Commissioners have pointed out, a thoughtful and thorough analysis. We are certainly in general agreement with what's contained in that document. We fully support the proposed Option 2, fully support the idea of risk-informing the assessment of blending.

We think it's a reasonable approach to include it in ongoing rulemaking.

Where we differ is that I don't think it's appropriate to refer to blended waste as a unique waste stream.

There's nothing unique about the media. There's nothing unique about the isotopic content. There's not even anything unique about the fact that it may have been blended.

Staff has identified an issue that the disposal of significant quantities of waste at or near the Class A limits, in close proximity, is a waste stream that's not identified in the determination of the limits that are established in 61.55.

I would say that just as important, is that waste stream is the fact that the limits in 61.55 also failed to account for several other contemporary factors.

For example, they rely on outdated dose methodology, they evaluated disposal practices that for the waste form we're talking about today, not only are not practiced at any site in this country, they're not even licensed at any site in

this country.

And they also rely on the analysis of these factors at a generic site, which is not representative of the site we would be talking about for the disposal of this waste.

So on my final slide, I have summarized what EnergySolutions proposal is, and that would be that the Commission proceed with a rulemaking, but that it drop completely this level of unique. Frankly, it's not needed and it doesn't help inform the situation.

Rather, we propose that the Commission simply require a site-specific assessment at each site.

That would determine whether or not you comply with the performance assessment -- excuse me, with the performance objectives in 10 CFR 61 Subpart C. It would apply to all waste, whether you call it unique, whether it's blended, whether it's depleted uranium that you dispose of at any given site. It would focus on what's important, which is ensuring the safe disposal of waste.

Because what we're talking about here, what's really important here is not blending per se, but the safe disposal of blended waste. And I think that broader rulemaking would accomplish that objective.

Thank you for the opportunity to present our comments.

CHAIRMAN JACZKO: Thank you.

We'll now hear from -- and I'm going to stumble on this one, Mr. Dornsife?

MR. DORNSIFE: Dornsife, yes.

CHAIRMAN JACZKO: Dornsife. Mr. Dornsife, who is the Executive Vice President for Licensing and Regulatory Affairs at Waste Control Specialist.

Mr. Dornsife.

MR. DORNSIFE: Thank you very much, I really appreciate the opportunity and invitation to make a presentation to the Commission this morning on this very important issue, in terms of Waste Control Specialists.

I just would like to note that in

addition to being responsible for licensing for the West Texas disposal facility, I was previously a state regulator. In fact, I was Dave Allard's predecessor in Pennsylvania and had a lot of experience in the low-level waste issue, because I was responsible for trying to site the Appalachian Compact facility.

So we had a very interactive public process. And also, we had a lot of experience with compatibility issues, in trying to develop compatible regulations, which were eventually adopted.

So, I think, you know, going into my presentation, I think Waste Control Specialists -- on page one, Waste Control Specialists generally supports Option 2.

However, we don't support the interim guidance issue -- the issuing interim guidance. And I will explain that in more detail.

I think the rulemaking is really necessary to address some of the important policy and technical issues that, to some extent, were

previously identified, and I would like to offer some more examples.

I agree that this waste stream is not unique from the standpoint of its physically different. Like was mentioned, it's unique from the standpoint that it was not analyzed sufficiently in Part 61. That's the uniqueness.

For example, Class C, at or near the Class C limit was not adequately analyzed in the Part 61 EIS, and maybe NRC ought to consider looking at that if they're looking at waste streams.

I also think that from the standpoint of uniqueness, this is a lot different than the DU issue.

I mean, the only -- really the only similarity that I see is the fact that, yeah, it was not analyzed in Part 61 and it requires a site-specific performance assessment.

But the type of site-specific performance assessment between the two is widely different.

I mean, we're talking, in the case of DU, a waste stream that could imply doing performance assessment out for hundreds of thousands of years, which has never been done before in the low-level waste arena.

So, from that standpoint, to me, you know, going with separate rulemaking is probably a preferable way of not bogging down either process, because there really are unique differences, in terms of standards and everything else, between the two -- between the two issues.

I think, obviously, you know, going the rulemaking path and eliminating the guidance, offers a full spectrum of stakeholder input, consideration of comments and all of the issues that essentially are out there. And there are numerous technical policy and safety issues that are involved in this issue.

Jim Kennedy gave you some of the policy issues. I would like to add that there's a couple others.

One being what is the appropriate standard for intruder protection? It's not identified in regulations.

It's in guidance as 500 millirem, but that was because the public dose standard was 500 millirem at that time. Should it now be 100 millirem based on the new public dose standard?

The other I think significant policy issue that was talked about is, yes, you won't directly create any orphan waste streams, but you may in fact wind up with orphan waste streams because of the cost of disposal issues.

If you eliminate, you know, this waste as being a waste stream for, let's say, Texas, if we can import it, the cost to dispose of the remaining 10%, 20% is going to be a lot higher.

And recognize that some of those alternate waste streams are involved with healthcare, you know, generating isotopes for healthcare.

I think it's safe to say that NRC or anybody else, has not identified any health and

safety issues with the current way the waste is stored, particularly at reactors.

So, you know, obviously, Texas is moving in the direction of trying to get import for this B and C waste stream. And, obviously, that could become a permanent solution, negating the need for this blending option.

So we're hoping, before the end of the year, to have some determination whether that's going to be a feasible option or not.

And I think, you know, obviously, the interim guidance, it could either prejudge or it could be shown not to be sufficiently protective once final regulations are issued. So going down that interim guidance pathway has some risks associated with it.

And, obviously, when you're dealing with guidance, Agreement States, you have a compatibility issue. Agreement States don't need to adopt guidance. In fact, they don't need to consider it at all.

So those are the reasons I think, you

know, rulemaking only is the appropriate way to go.

The other issue I would like to talk about that is, I think, very important and that's the compatibility issue.

And I think there is a need to have more uniform implementation of the requirements in the Agreement State.

I think, to some extent, it's gotten somewhat lapse -- you know, somewhat lax, in terms of NRC making sure that this -- that the regulation and the standards are being implemented uniformly.

And I would like to give you, basically, some examples.

As Susan mentioned, Texas has a regulation that prohibits acceptance of blended waste on the face of it. Even if we could import the waste or if we took waste -- we were taking waste from Texas generators, we could not accept blended waste. So it's, obviously, an issue with compatibility.

In addition, in Texas, the way our license is set up, we cannot necessarily right now -- when the site goes in operation, accept waste at or near the Class C limit, because it was not specifically analyzed in the license application.

In fact, like Susan kind of mentioned, we're going through a process now to expand -- in fact, we can't accept anything other than Class B resins right now, we are going through a process to expand that definition by saying we can accept these resins if they fall within the current bounds of what was analyzed in the license application.

We recognize eventually we have to do a major amendment to be able to accept waste at the Class C limit by looking at specific waste streams. And I don't think other states use that approach.

In Texas, even if there were no regulation regarding the dilution issue, Texas law and regulations would classify blended waste as

what's called containerized Class A, which is waste that is at a dose rate of greater than 100 millirem per hour.

And under Texas regulations, that waste would have to be disposed of with the same requirements that you would have to have for Class B and C.

And I think I would like to go, just finally, to the chart next to the last slide, the figure.

I just wanted to give you all some indication of what kind of standards that we have to meet in Texas regarding disposal of waste.

First of all, all classes of waste, including A; A, B and C -- and A is required to do this because of another unique Texas regulation that says if you have radionuclides with greater than 35-year half life or any transuranics, you have to dispose of that material in a concrete canister, reinforced concrete canister. It's a totally unique regulation to Texas.

So, because of that, we have to dispose

of all of our waste in concrete, reinforced concrete canisters that have a three to five hundred-year design lifetime for stability. Essentially, the disposal that - we have a very thick red bed clay that's very impermeable and our disposal cell is in that clay.

In addition, we have a concrete liner around the cell, so the waste is in a concrete canister within a reinforced concrete liner.

So it's way more stringent, again, than any other state disposal requirements.

Thank you very much.

CHAIRMAN JACZKO: Mr. DiCamillo, who is the General Counsel of Studsvik.

MR. DiCAMILLO: Good morning, Mr. Chairman, Commissioners. Thank you for the opportunity to participate in this briefing.

Studsvik appreciates the efforts that NRC staff has made to research and learn about the different viewpoints on blending, and for the work that NRC Staff has undertaken to produce the vote paper.

Studsvik has submitted written materials to the Commission detailing the reasons why we do not support large scale blending and we encourage the Commission to review all of those materials.

There are three key points that Studsvik would like to make today, relating to interim guidance homogeneity and the effects on the waste disposal system.

First, no interim guidance should be created by NRC Staff that would permit large scale blending.

If the discussions on blending today and in the past have shown us anything, it is that current NRC guidance on blending is murky, at best.

Interim guidance will only serve to further confuse NRC's position on blending, especially if the Commission moves in a direction different from the interim guidance.

Stakeholders, industry, Agreement States and the public need clarity, not further confusion on the issue.

The Commission should instruct the staff not to issue interim guidance or consider any license submissions for blending activities until the Commission has decided its path forward.

There is no compelling reason why interim guidance is necessary.

The Commission should also place all blending requirements into rulemaking, particularly when those requirements relate to safety.

A combination of rulemaking and guidance, as is recommended by NRC Staff, will potentially do nothing more than continue the debate.

Second, blended waste is not homogeneous. No matter what the Commission's ultimate decision on blending is, homogeneity is a fundamental concept in evaluating the protection afforded an inadvertent intruder and the environment.

Neither physical nor radiological homogeneity can be achieved by blending.

From the physical aspect, like oil and water, different types of resins will not remain mixed, due to density and particle size variations.

I think Mr. Camper touched on that issue.

The Department of Energy calls that phenomenon classification and Studsvik's engineers have demonstrated it in its submission to the Commission, which you all have.

Classification occurs when lighter N ion resins, what I'm calling the oil, quickly rise to the top of the container. While the heavier Cadion resins, the water, sink to the bottom.

Classification also makes homogeneity impossible, since the N ion and Cadion resins will be separated in the disposal container.

Even if the disposal container were to contain all of the same type of resins, for example, radiological homogeneity is illusive. A fact acknowledged by NRC Staff in its concerns over hot spots in the disposal container of

blended waste and the effects of those hot spots on the safety of an inadvertent intruder.

The physical and technological challenges of achieving radiological homogeneity make that goal difficult to meet.

Third, large scale blending will further destabilize the system for disposal of low-level waste.

There is no dispute that approximately 5,000 cubic feet of Class B/C resin cannot be successfully blended.

There's also no dispute that other types of Class B/C waste, for example, medical and research waste, irradiated hardware and filters cannot be blended.

It is imperative that these waste streams have a disposal path.

In addition, Texas and Utah have confirmed that they have constraints and opposition to blended waste in their disposal sites.

As a policymaking body, the Commission

must consider these facts as it determines the path forward and it must remain faithful to its objective of encouraging disposal site access.

Thank you.

CHAIRMAN JACZKO: Thank you or that presentation.

We will now next turn to Diane D'Arrigo, who is the Radioactive Waste Project Director at the Nuclear Information and Resource Service.

MS. D'ARRIGO: Thanks.

I appreciate being invited to give a public interest and environmental perspective on this issue, having tracked the low-level radioactive waste issue since the very late '70s and early '80s.

From the public perspective, the issue driving today's meeting and the decision that's before you is which of -- in a simplified way, what's driving it is which of two corporate schemes to support or whether to allow for both of these schemes for a portion of the more concentrated so-called low-level radioactive

waste, mainly, the most concentrated resins from nuclear power cores and irradiated fuel pools.

This is the waste that results from damaged or leaking irradiated nuclear fuel and it's comprised of the same elements as high-level waste, albeit in different ratios and concentrations as the irradiated fuel, but it's referred to as low-level waste and, in 10 CFR 61, can be disposed of in on line soil trenches with 100 years of institutional controls.

I know that you know this, but this is the view of it that has been problematic in siting new radioactive waste facilities.

On one level, the discussion is between two companies with two ways of managing the difficult waste. Either way, most of the Nations' most concentrated nuclear power waste is going to go to the State of Tennessee, whether people there know about it or not, and whether they like it or not.

So taking a larger view of what's going on with the whole management of low-level waste is

what I'm asking you to do.

Changing the principles of the original classification system for low-level waste is opening the door to blending, to creative packaging, to mathematical averaging of all of the B and C waste and potentially the greater than C waste and waste incidental to reprocessing that was originally, and in many places still is, high-level radioactive waste.

We have concerns about additional steps in waste handling that increase unnecessary transportation, worker exposure, routine releases. Both down-blending and processing add steps to the nuclear fuel cycle or fuel chain, increasing the opportunities for radioactive releases and exposures.

We would like an independent review of all of the processing that's being done and a determination as to whether it's really needed.

We have concerns and opposition to performance-based risk-informed approach to regulating nuclear waste, because we do not agree

on the goals of the NRC, the waste generators, the processors and disposers.

Concern is that they're not measurable, verifiable or enforceable goals or limits. Performance-based or risk-informed regulations need health protective goals, clear enforceable, verifiable outcomes.

And the nuclear waste processing and disposal system in the U.S. does not have either of these. The goal is not to prevent radioactive releases or exposures, but to permit legal levels, not necessarily safe levels, if computer models indicate that some calculated amount to a standard man won't be exceeded.

Stricter state regulations have often been discouraged and sometimes superseded.

I appreciate the efforts to make nuclear waste and mixed radioactive and hazardous waste less bio available, but the overall system which perpetuates creating wastes, new contaminated sites and more waste is what's of concern.

I would like to see a goal of isolating this waste for as long as it remains radioactive.

Overall, we may not agree with the underlying analysis of 10 CFR 61, the regulations for classifying and burying radioactive waste, but it is the current basis for commercial radioactive waste management in the United States that we have had to deal with since 1982.

It appears that the principles that are the basis of 10 CFR 61 can be changed when the NRC wants to, but only in ways that weaken public protection, with the depleted uranium being put into Class A as an example. It's supposed to be a category that has 100 years of hazards, even though depleted uranium is much longer.

And it would be weakening it now to allow the blending to achieve making the waste be at the highest level of the Class A category, just at the base of the B or C category.

So Class A then would be -- the problems that we see with the 10 CFR 61, if it's moved

to performance-based risk-informed, there's the possibility of this exacerbating the Class A problems, adding more radioactivity to it, rather than what the public has wanted, is shorter lasting radionuclides in the category that is only requiring 100 years of institutional control.

There is a concern that increasing this amount of Class A will increase the risk at the disposal site in Utah or any other Class A disposal site. It will increase the risks or concerns on the way to the site. It adds an additional potentially unnecessary step to the fuel chain; more transport, more worker doses, more routine releases to air and water, each of which may be considered small by the NRC or the Agreement State agency, but cumulatively increasing the overall environmental and public health burden now and in the future.

It is obvious that large scale mixing and blending of waste, if permitted in Tennessee, will increase the amount of radioactivity that would go to Tennessee, the amount of volume

that would go to Tennessee. Not really gotten a good answer on whether all the Class A would have to be brought in to down-blend or where the down-blended material would come. Rather than going straight to Utah, would go to Tennessee first.

And also, the amount of radioactivity that would go to Utah would dramatically increase. I've got a chart which I will distribute, which shows the exponential increases in the amounts, at least the doubling or tripling of the amounts of radioactivity per year that's gone to Utah.

It started out less than a currie a year, went up to hundreds then thousands, it would go into the tens of thousands with blended resins under a couple of scenarios.

So, I see that my time is going.

CHAIRMAN JACZKO: Try and wrap up in the next minute or so.

MS. D'ARRIGO: I'm concluding.

The concern that we have is additional transportation and overall addition of steps to

the fuel chain. There is the opposition by organizations in many regions of the country to the down-blending principle or proposal. And I will provide the list of those organizations.

If the Commission does go to a rulemaking, know that the public has a concern that Class A already includes too much and long-lasting radioactivity and that, in general, the organizations oppose the risk-informed performance-based options -- standards, for the reasons mentioned.

And, of the options, would go with Option 4, which is to prohibit the large-scale blending.

CHAIRMAN JACZKO: Thank you.

Finally, we will turn to Ralph Anderson, who's Senior Director of Radiation Safety and Environmental Protection at the Nuclear Energy Institute.

MR. ANDERSON: Thank you, Mr. Chairman and Commissioners. I appreciate the opportunity to offer a perspective on behalf of the nuclear

energy industry.

If you would turn to the next slide, please.

The industry, including research and test reactors, nuclear fuel facilities and utilities operating nuclear power plants, has developed a set of principles to govern our thinking going forward on low-level radioactive waste management that are shown on this slide.

They were developed by an industry working group from those communities. And also, our principles were well informed by representatives from the materials licensees community.

Those principles were then vetted by the Nuclear Strategic Issues Advisory Committee of the industry, which includes the nuclear executives of the utilities and related nuclear energy companies.

I would comment that, clearly, we take this issue and weigh it against these principles and draw certain conclusions.

Principle Number 3 is especially

appropriate for our thoughts on NRC actions going forward, which is that we believe that regulations should not restrict safe and secure low-level rad waste management options.

So we think the key determination for the NRC is whether in fact the option proposed by the staff would lead to a safe and secure outcome for low-level radioactive waste management.

We also note in Principle Number 4, that we think that relates directly to issues of compatibility.

We do not support strict compatibility with the approach suggested by the Staff.

We have in the past, do in the present and will continue in the future to respect that it is fundamentally, up to the states, given a safe regulatory framework, to make the determination of whether they will accept any particular waste form.

I think NRC's job is to provide the necessary regulatory framework to ensure public health and safety, but the states'

responsibilities, as noted in their discussions, go well beyond that.

The NRC is not a recipient of low-level radioactive waste, the states are. And I think those are very different roles.

Finally, in regard to some of the issues that are in the background regarding economics and viability, what we encourage throughout is that we believe we need as much of an open marketplace as possible, understanding that that market is exceedingly constrained by the Low-level Rad Waste Policy Act and its structure of compacts, and constrained by the necessity for a sufficient regulatory framework to assure public health and safety.

If you would turn to the next slide, please.

NEI, the Institute of Nuclear Power Operations and EPRI work very closely, especially in the areas of radiation safety, low-level radioactive waste management and environmental protection.

And, collectively, we had EPRI undertake research really ongoing in the area of low-level radioactive waste. But they did produce a report, which we shared the NRC Staff in 2008, which evaluated specifically the branch technical position regarding concentration averaging and encapsulation of low-level radioactive waste.

And the blending issue really is captured within that branch technical position. So this report is focused on that, makes certain recommendations about risk-informing the staff guidance.

I would point that one conclusion that we have that we share collectively is that the changes should enable but not require others to implement the related processing and disposal options.

So, again, that is our position in regard to the state concerns associated with making the risk-informed changes.

Go the next slide, please.

The report does include an appendix with

data about production of various types of waste that are affected by the branch technical position.

The round number that we used at that time were about 15,000 cubic feet of B and C waste generated per year.

That's actually -- my understanding is that's processed waste for disposal, so it does take into account the processing that was in play at that time, including certain amounts of volume reduction.

I would comment that since the restriction of access to the Barnwell site, that volume is actually decreasing as the plants adjust to that fact by changing operational practices.

So we're probably closer to 11 or 12,000 cubic feet now.

Many years ago, when the issue of greater than Class C waste arose, we changed our practices to dramatically, as much as possible, eliminate the generation of waste that would be greater than Class C, recognizing it would be a

long time before we would have an available disposal option.

So you're seeing a similar phenomena play out now. So we are doing what we can to reduce that amount of waste that currently would not have a disposal option.

If you turn to the last slide.

Although we do support the Option 2 recommended by the Staff, there are a few caveats and I'd like to point those out.

One is, we support a rulemaking irrespective of the issue of blending that would be more explicit to require site-specific evaluations where there is a question of whether a suggested waste stream falls within the current analyzed basis for regulation or the current basis, for that matter, of a specific license for a specific facility.

I believe that's always been implicit in the regulation, it’s fundamental to way that you regulate licensees, but an explicit statement with supporting guidance could be very helpful.

While we accept that efficiency might be obtained by piggybacking onto the existing rulemaking, we share similar concerns that were brought up by some of the Commissioners and some of the other people on panel. We do not view blended low-level radioactive waste as, in any way, unique, in the common usage of the word.

Depleted uranium does have associated with it very unique aspects; one, the in growth of decayed daughters. That is very unique among waste forms that we dispose of. And, secondly, the issue of chemical toxicity.

We would encourage a strong consideration of pursuing the rulemaking generically to require site-specific evaluation as a separate issue from additional aspects that might be needed to address for depleted uranium.

Thank you.

CHAIRMAN JACZKO: Well, thank you for those presentations.

We'll start with Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

I must say I'm still a bit perplexed regarding this site-specific risk analysis.

As I said this morning, when the issue of intrusion was considered for high level waste, they found that it was almost unmanageable and decided to put it on the side. It was the not part of their failure modes that were to be considered and compared to the standard. It was just for information.

And yet, not all of you, but several of you are supportive of this.

So now we have this move to bring it into the regulations. And I'm wondering whether the practicality of doing it is something that you have considered.

Because we heard this morning from Dr. Ridge that, well, yeah, we will do a conditional probability evaluation, because we can't really tell what the probability of any intruder coming in is.

And in my mind, that creates all sorts of problems. So I must say I'm a little perplexed. Probably more than a little.

Have you thought about it, as to the feasibility of doing site-specific analysis? Not that I'm against them, but I see all sorts of problems.

And then, Mr. Dornsife, you said that what do we compare the result to, the current limits on millirem and so on? And again, I'm thinking, well, that's not what the site-specific risk analysis will produce. It will have some probability there somewhere.

And I don't know how I can use -- am I going to use the 95th percentile or something else? The average value?

So these are issues that are pretty important, at least in my mind and I'm not sure that I heard -- I get the sense that people have really thought them through.

MR. DORNSIFE: Let me try to take a crack at it.

Obviously, we do, we have done at Waste Control Specialists, for a licensing process, a site-specific analysis that looked at specific waste streams that were identified in previous survey reports.

So we've done a site-specific performance assessment analysis. And we have a license right now, like I said, that's written that only allows us to basically accept those waste streams that were specifically analyzed in that license application.

Now, the intruder issue is an interesting animal, because, in our case we satisfy the intruder issue by the fact that the waste -- the top of our waste cell is at least 10 meters below the surface. So we greatly exceed the 5 meter requirement for intruder protection in Part 61, as well as having two independent concrete intruder barriers, reinforced concrete intruder barriers.

So we don't -- we didn't have -- we didn't have to do a specific intruder analysis,

because we showed that we met the intruder protection by other means allowed in the regulations.

COMMISSIONER OSTENDORFF: So These are the deterministic arguments?

MR. DORNSIFE: Right.

COMMISSIONER OSTENDORFF: But if you're required to do a site-specific risk assessment, you have to go beyond that, won't you? Consider the probability that, in fact, the intruder will defeat some of these --

MR. DORNSIFE: I mean -- and I think, you know, because of the difficulty of -- well, there is some probability by choosing different intruder scenarios, depending upon the site location.

I mean, that is part of the analysis. You assume in different climates, you get different types of intruders.

But, I think, you know, it was assumed in Part 61 that at 100 years you lose institutional control and at that point an intruder can, in fact, build a house on that site.

And if you don't have adequate barriers to prevent that -- I mean, it's a very conservative assumption, obviously, and no other regulation does that. But it's the way it's been done.

And it's done by guidance, not by regulation. I mean, there is no regulatory requirements, other than intruder need to be protected.

MR. MAGETTE: I think coming from the reactor world, what we have here is probably a difference in the way terms are being used and, you know, the sense of a probabilistic risk assessment, where you look at the probability of an event and the potential consequences of that event and look at how they combine to give you a risk is simply not what we're talking about here.

It is really deterministically based. The probability of an inadvertent intruder, generally speaking, is either zero or one. And I think what we're really talking about is a site-specific analysis.

So that rather than rely on a set of

predetermined limits, which are contained in the regulations, to determine the safety of the disposed waste form, what you look at is how the disposed waste form performs, given a specific container, specific engineered features, specific disposal techniques and specific site characteristics.

So I really think what we have is a terminology distinction. I don't see that we've looked at or anybody else has looked at a strict probabilistic assessment of an intruder scenario. It's either zero or one. So I think that's part of the issue.

MR. DORNSIFE: Could I just add something real quickly?

I think there are other performance objectives that do apply here. You know, if you have a waste stream that you haven't analyzed, you have worker exposure and accident considerations.

So it's not only intruder protection that's covered by the performance objectives in Part 61.

You know, there's public dose, there's worker dose, there's intruder dose and, finally, there's stability.

We focused on just intruders in most of the discussion, but, you know, when we would apply for a different -- a waste stream that we haven't analyzed, we'd have to look at all four performance objectives, in terms of making sure that they were all analyzed and satisfactory.

CHAIRMAN JACZKO: Commissioner Magwood.

COMMISSIONER MAGWOOD: Thank you, Chairman.

Mr. Magette, I'm going to start with just a quick question for you.

You did mention a desire to see Part 61 modified to include the site-specific analysis. I would just like to get your thoughts about the wisdom of revisiting Part 61 in its entirety.

Would you like to give us a few views on that?

MR. ANDERSON: I'd like to comment on that. I'm sorry if it was directed specific --

COMMISSIONER MAGWOOD: I'll get to you.

MR. ANDERSON: That's fine.

COMMISSIONER MAGWOOD: Unless you want to answer for your --

MR. MAGETTE: I'll give you a chance Ralph.

But I certainly think that there's a lot of wisdom in risk-informing Part 61. We've said that in our comments on the unique waste stream rulemaking solicitation.

There's, obviously, a consideration of how you get there, which has gotten more attention today probably than it has heretofore. I've heard comments from many people saying that the Commission should go straight to risk-informing Park 61 because these interim steps, whether they be applied to depleted uranium or blended waste, are simply a waste of time.

I have personally taken the view that by taking these interim steps the Commission will in fact actually advance the ball.

If you really do -- if you took the recommendation that we put forward today, I'm not sure what would be left to risk-inform or to

revise, rethink the entire Part 61.

So I'm absolutely in favor of it. I think there are different ways to get there. I have no objection to the way the Commission is proceeding. If the Commission wanted to fast-forward and do it all now, I wouldn't object to that either.

COMMISSIONER MAGWOOD: Mr. Anderson, you were particularly anxious to jump into that.

MR. ANDERSON: I apologize, Commissioner Magwood, I didn't realize the question had already been specifically addressed.

I think that the Commission deliberations on generically updating the radiation protection related regulations provides a unique opportunity at the same time to risk-inform Part 61.

A fundamental part of Part 61 are the performance criteria, which, of course, are based on a 50-year-old methodology for dose and a 50-year-old set of scientific assumptions.

Repeatedly, I'm at meetings with my

colleagues where they call out the issue of unique use of reference man, and that's a legitimate concern.

And, in fact, ICRP-2 is based on reference man.

That has changed, using updated methodologies does take into account sex, and age specific-related dose conversion factors. So that would be a part of doing that updating.

That alone, in my mind, would argue for a updating of at least a numerical criteria in Part 61. But also there are instances that have been reviewed by the Advisory Committee on Nuclear Waste before it was subsumed into the ACRS, that have looked at some specific instances where a true performance assessment was done in the arena of low-level rad waste disposal.

There are several instances that I know were discussed in that committee.

And so I think an updating of the regulation actually could help solve the perplexion that you currently have by creating a

rule that is built around a performance assessment, as I think we understand it in contemporary terms.

Right now that's very difficult, given the way that the rule is structured. So I think there's some good arguments for updating it.

The trick is doing it in a way that directly involves the states all the way through, to make sure that compatibility issues are dealt with properly because you don't want to end up needing to go back and effectively relicense all of the existing facilities.

COMMISSIONER MAGWOOD: Thank you.

Ms. D'Arrigo, you expressed some concern about the current structure of the way to pursue licensing of low-level waste.

What do you think about revisiting Part 61? Do you have some thoughts about that?

MS. D'ARRIGO: I think if you're going to do a change in the rule, that there needs to be a good amount of time, because there are a lot of people in this country, members of the public who

participated in low-level waste siting issues.

There are people that are concerned about it, even though it's now largely focused on Utah, Tennessee and Texas, but there is a larger concern.

It has not been something that is facing people because the siting program has stopped in most places.

But I think that there would need to be an opportunity for public concerns to be included. And it would by more than a 30 or 60-day comment period.

I'm not sure how -- you know, maybe some -- I know you don't provide intervenor funding in the interventions, but it's a situation where there is scientific data now that there are health effects from Chernobyl that are significant.

The radiation -- the consensus is that radiation is more harmful than previously assumed. Yet, every time we update the radiation protection standards, most of the isotopic allowable concentrations increase.

So that if it's more dangerous, why is it okay to have higher amounts of routine releases or higher amounts of exposures.

Especially taking on 10 CFR 20 and 10 CFR 61 at the same time. I think there will be a lot of public interest in participating very actively in that, but it would not be something you can do in 30 days, if you really wanted the public input.

COMMISSIONER MAGWOOD: I suspect it would take longer than 30 days, myself.

MS. D'ARRIGO: Well, I mean, at each juncture of comment.

COMMISSIONER MAGWOOD: No, I think we recognize -- I think the Staff indicated, I may be wrong, I think I remember hearing something about five years to revisit Part -- Is that right, Part 61?

So it would be a pretty involved process and, obviously, it's something the Commission would want to have a lot of public input.

So we appreciate your thoughts on that.

And, Chairman, you raised this idea about Part 61. And I think it might be interesting to actually ask the Staff to give us some more detailed thoughts about what that might look like if we were to pursue that, just so we would know what we were getting into if we went down that path.

MR. DORNSIFE: Could I provide some quick comments, because I was actually on a panel at the most recent RIC conference talking about this issue? I was one of the naysayers.

COMMISSIONER MAGWOOD: Chairman, does he have time?

CHAIRMAN JACZKO: Sure. Although, I guess I'd like to know what you're going to say before I'm going to give you extra time to say it, but I'll roll the dice.

MR. DORNSIFE: I'm just going to summarize some of the major concerns that I have with changing the system. The first one is the fact that the current system is embodied in state and Federal law.

You have the Low-Level Waste Policy Act that is a date certain classification system. And if you don't change the Federal law, you could create orphan waste streams.

You have an infrastructure that's been built up around the current classification system that would be very -- not necessarily difficult, but very expensive to change.

And, finally, you know, it's going to be very difficult with the Agreement States structure to come up with a compatible way or a satisfactory way to do uniform performance assessments across the country.

DOE can do it very easily, because the same people do the risk assessment, you know, for each of the DOE sites. But it's going to be very difficult to do it under the current Agreement State system.

And that, obviously, is one of our great concerns, in terms of a level regulatory playing field. Which, obviously, is a business issue.

CHAIRMAN JACZKO: Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Chairman.

I'm going to turn to Studsvik here for a minute. A couple of questions.

I want to follow-up. You made three points in your presentation Joseph and one of those was that large scale blending would further destabilize the low-level waste structure for disposal.

And I think I understood you to say that some material that cannot be blended may not have an ultimate disposal path. Can you expand upon that please.

MR. DiCAMILLO: I try to avoid the economic issues in my remarks, but I think that much of it's going to relate to economics and cost and access.

Let's presume for a moment that WCS, the Texas compact permits import, so we can import B and C waste into the Texas compact.

It just seems to me that the basic rule of economics is less volume means higher price.

So if we're going to move a significant

amount of the market, so-to-speak, to blending, then we're going to end up with higher prices. Particularly, I think that we've already -- that the Staff has heard, with respect to concerns from hospitals, research institutions, and that kind of generator, that they're concerned about -- price is a huge driver for them, much more so than industry.

COMMISSIONER OSTENDORFF: Let me follow-up with one other question, just more broadly.

Studsvik, obviously, you have an international presence. Are there any lessons learned or perspectives from your overseas experience that might inform the U.S. blending issue?

MR. DICAMILLO: I would say that our view is one of -- our corporate philosophy really follows sort of the waste hierarchy, reduce, reuse, recycle.

So our view, corporately and from a philosophical point of view, is that the less waste you put in the ground, the better off you are. So I think that ties particularly with our

philosophy with respect to volume reduction and stable waste form, which we don't -- which we view as being inconsistent with blending.

COMMISSIONER OSTENDORFF: I'm going to turn quickly, Ralph, to the NEI perspective.

Across the industry you note about two-thirds -- as I understood from your slides by volume -- about two-thirds of the waste is being stored on-site --

MR. ANDERSON: Yes, sir.

COMMISSIONER OSTENDORFF: -- at different plants pending disposal and that it’s currently safe and secure. Do you have any overall assessment of how long a period of time the industry has until this becomes a real problem?

MR. ANDERSON: That's difficult to estimate, in one regard, because of the -- I think the issue of innovation was brought up earlier, I call it

ingenuity.

The low-level waste arena has had twists and turns, frequently over the years, that have changed people's practices. The one that was eluded to was the dramatic reduction in volumes that was achieved, that was thought to be impossible, frankly, on the front end, on that scale factors of 25 fold reductions.

So what I would surmise is that it will never become an issue, no matter what the circumstance, as long as there is the possibility of an ultimate disposal option.

I think it would only become an issue if all options were foreclosed. And that is because we would adjust our practices, we would adjust our processing capabilities, and other things, to accommodate whatever constraints we ran into.

I wonder if this situation persists for five or ten years, if we'll even been generating any Class B or C waste.

An interesting fact and one of the analyses that EPRI did, if you took all of our

waste and could somehow put it in one giant blender, it would all be Class A waste.

So, as a starting point, that's suggestive of -- and challenge to engineers to figure out how to get there if we retain the current approach to classification.

Now, from a practical point of view, at the current rate of generation, we probably would be in 20 to 40 year time frames before people would need to look at significant additions to the facilities themselves.

So it wouldn't be a problem, it would just be additional capital outlay.

There would be, likely, much more consolidation at central storage facilities. In fact, I could even see a new cottage industry growing up to do that. And I know some states are looking at that, even now. Illinois is, among others, as to whether maybe the state itself ought to get into the central storage business.

So I don't see it ever becoming a true problem.

COMMISSIONER OSTENDORFF: Thank you.

Thank you, Chairman.

CHAIRMAN JACZKO: Commissioner Svinicki.

COMMISSIONER SVINICKI: Mr. DiCamillo, in your statement you advocated, I think, correct me if I'm wrong, option -- Staff's Option 4, which would prohibit large scale blending.

And I just had a clarifying question, then. Staff makes a distinction of the types of blending that would still go on under that scenario that they're not defining as large scale blending.

Would you also draw the same distinction as the Staff, then, when you support Option 4?

MR. DICAMILLO: I think that's accurate. We recognize that there are -- that current power plants blend for all kinds of reasons, and particularly with just physical design and other things. We would think that it would be impractical to require a change in that.

COMMISSIONER SVINICKI: Okay. All right, thank you.

Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Well, I certainly appreciate your comments, Commissioner Magwood, on the interest in looking -- getting some information from the Staff on Part 61.

I think it -- perhaps if there seems -- in all of the discussion there seemed to be some things where there may be some common ground. One that -- I noted several people indicated a sense that -- not having -- issuing interim guidance is certainly a good criteria as we go forward, in whatever approach we want to take.

And I think that's certainly something that I saw, having gone through the issues with depleted uranium, and I think some of the biggest challenges we created or become involved with.

And that particularly really had to do with what our interim actions were and how we were going to eventually get to a final rulemaking and a rulemaking on that process.

So it's certainly something that I think might be something we want to take a look at.

Mr. DiCamillo, you talked -- I think there was an important factor you talked about in the use of homogeneity. And you, I think, indicated that you don't believe that you can achieve homogeneity.

Do you think it's possible to come up with homogeneity standards? I mean, you know, if a rule were to be written that said blending is acceptable if you can meet the following criteria for homogeneity?

I mean, do you think it's possible to create such standards?

MR. DICAMILLO: Well, I think that -- what I tried to say was that homogeneity really is one of the drivers in the safety analysis.

And I think that it will continue to be, and the question will be for the Staff and Commission to determine -- I guess the short answer is yes.

It's a question of where the Commission and staff will determine is the safety cutoff, so-to-speak.

CHAIRMAN JACZKO: In an absolute world with 100% -- well, I don't know whether you could define 100% homogeneity.

But something where it were truly homogeneous material, would you still have concerns with blending in that case?

I mean, again I recognize there's a business angle here, but from a safety perspective, would you see that as fundamentally problematic?

MR. DICAMILLO: I think the answer is, a truly homogeneous mixture, in other words, 100%, I don't - I can't -- I mean, safety is the driver. I think that's where we are.

So I don't -- and that really has been consistent amongst our comments, so I guess the answer is if you had a homogeneous mixture that you knew you could blend safely, the answer would be yes.

CHAIRMAN JACZKO: And then, I guess, to some extent maybe the question we have to try to figure out is, is that physically possible and is it

worth the time and effort to do that, perhaps.

Well, I just thought I would touch a little bit in the end on Commissioner Apostolakis' comments about the performance assessments and the issues associated with that.

I think one of the issues that's come up a lot, I mean, we perhaps do mix a lot of terms. We've talked about updating Part 61.

Of course, updating Part 61 doesn't necessarily mean going to a risk-informed performance-based approach. It could simply mean utilizing better data in the waste classification that we have right now.

Analyzing a lot of these waste streams that haven't previously been analyzed and figuring out where they fall in the classification system, you know, things like that. Or coming up with a position on blending that establishes clearly what homogeneity is. Or, as Mr. Dornsife you said, actually putting into the regulation what our intruder protection requirements are and what the standard is for intruder protection.

So it does, I think, encompass quite a few things. And I have, in the past, had similar concerns about the mechanics of doing the risk-informed performance-based.

But one of the things -- and this was in a meeting we had with some of your -- well, what are now colleagues on ACRS, but were formerly at ACNW&M.

And one of the things that we had heard from ACNW&M at the time is that if you went to a truly risk-informed approach, you may actually find the intruder scenario is not the dominant scenario from a safety perspective. It is another scenario which we don't currently envision in our rule.

So it certainly, if we were to go that direction, does open up a lot of different approaches to safety. But I think the analogy, in some ways, is how we deal with security in the reactor space.

It's very, very difficult to put probabilities and assign probabilities to these events. But, yet, we recognize they have an

importance to safety and security. So somehow we kind of mesh these together in a sometimes in artful way.

But I think it certainly was an interesting line of questioning. And I think there's a whole host of interesting issues here. And I really don't think I have any questions in that.

But would simply close at this point, then thank all of our presenters. I think this has been a very good meeting.

I appreciate all the comments of the Commissioners.

We would -- I think the one issue Commissioner Magwood raised possibly for SRM consideration would be looking at asking the Staff to get some more detailed information about what a more comprehensive Part 61 revision would look like. Certainly something we could put in the SRM.

And then Commissioners want to comment on that, if they would support that or not support

that.

I didn't hear any other things immediately, but as we go through, we can have more discussion.

Any other comments from my colleagues?

COMMISSIONER APOSTOLAKIS: You are talking about the SRM now?

CHAIRMAN JACZKO: Yes.

COMMISSIONER APOSTOLAKIS: I support this proposal, but I would certainly like to have more information on what the Staff means by Option 2 which is the issue you just talked about, and others.

I think it's important to appreciate what it will take to do these kinds of analyses before we can decide to go ahead and say, yeah, these are -- this is the way we're going to go.

And coming back to Mr. Magette's comment. I don't think that the words risk-informed performance-based should mean different things for reactors or for waste.

I mean, you're either risk-informed or you're not.

You may by clever how you use risk information, because, you know, there are differences and so on.

So I propose that we ask the Staff to give us a little more information as to how that would be done, what the difficulties would be and so on.

CHAIRMAN JACZKO: Commissioner Ostendorff seems to be nodding and others. So we would also put that in there. And we can work on the specifics as we have more discussion about that.

Any other issues?

Well, again, I want to thank all of our presenters today and the Commission as well. I think this has been the -- in my five years at the NRC, this has been one of the more interesting meetings I've been able to participate in.

And so, I think we have our work cut out for us and I look forward to more discussions.

Thank you.

(Whereupon, the meeting was concluded)