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April 9, 2009

The Honorable Dale Klein, Chairman,
Gregory B. Jaczko, Peter B. Lyons,
and Kristine L. Svinicki, Commissioners,
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Importance of Access to disposal for LLW Classes B and C — A University Perspective

Dear Commissioners,

This is Cal Rad's second letter of background information for the April 17th briefing of the Commission on disposal of low-level radioactive waste.

On May 24, 2006, Dr. Joseph P. Ring of Harvard University made a very interesting presentation to the NRC's Advisory Committee on Nuclear Waste. Dr. Ring is the Associate Director, Radiological Services and Radiation Protection Officer at Harvard. His presentation, "Radioactive Waste, an Academic and Medical View," is enclosed. Dr. Ring's testimony can be found on pages 32 to 43 of the meeting transcript. See page 39 for his comments on the possibility that the DOE might provide access for disposal of non-DOE Class B and C LLW.

If you have any questions or comments about information in this letter or the enclosures, please call me at 925/283-5210 or send me an email at APasConslt@aol.com.

Sincerely,

Alan Pasternak

Encl.: Dr. Ring's Presentation
ACNW Transcript, 5/24/06

Cc: NRC Staff
Joseph P. Ring, Ph.D., CHP, Harvard University
Cal Rad Forum Board of Directors

Radioactive Waste, an Academic and Medical View

Joseph P. Ring, Ph.D., CHP
Harvard University

Academic and Medical Radioactive Waste

- Short-lived materials
  - Decay-in-storage
- Longer-lived materials
  - Research
    - ^{3}H, ^{14}C, ^{36}Cl, ^{99}Tc (for example)
  - Medical
    - Flood Sources (^{57}Co)
    - Sealed Sources (^{60}Co, ^{137}Cs)

RAM Use Drivers

- Hassle Factor
  - Alternate methods are preferred
    - RAM cost and regulation are disproportionate to risk
    - Researchers switch to hazardous materials that are not as well regulated with a net increase in population risk
- Cost
  - Disposal
  - Surcharges
  - State and local surcharges
- Site availability
- Stability and predictability

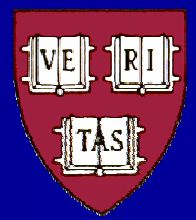
Current Status

- Class A
  - Capacity exists
  - Lack of competition
  - Cost
  - Concern over future capacity and access
    - Lifespan
    - LLWPA restrictions
- Class B and C
  - Large level of concern

Sources
Class B and C

- Existing sources
  - Disused sources do not have a disposal option and are in storage
    - Lack of resources (options, space, money)
- Concerns
  - Capacity for Class B and C Wastes
  - Disposal access

Regulatory Structure



LLRW Policy Act

- Intentions
  - Redistribute responsibilities to generating states
  - Reduce wastes
- Accomplishments
  - Reduced waste so it no longer applicable due to small volumes and economics
- Concerns
  - Decreased access
  - Significant expenditures with no new site
  - Do not penalize states

LLRW Policy Act Options

- Revise or Repeal
  - Unlikely to happen
- Permit access to all DOE facilities
  - Class B and C in GTCC facility
- Consider a new facility on federal land

Regulatory Model

- Current Model
  - Overly complicated
  - Classification based on source
  - Disposal based on legislation

Model Revision

- Risk based classification and disposition
  - Harmonize with non-rad waste disposal
    - at least for Class A
- Revised Model Basis
  - Security
  - Public health and safety
  - Protection of the environment
  - Overall risk
  - Cost

Revised Model

- Risk based classification and disposal
  - NCRP 116 Limitation of Exposure to Ionizing Radiation
- Allow disposal in RCRA sites in compliance with EPA risk model
- Texas style short-lived exemption for municipal disposal facilities
  - Disposal in a Type I Municipal Solid Waste Facility or a Hazardous Waste Facility
  - Title 30, Texas Administrative Code (30 TAC), Subchapter C Section 336.225
- Consider Clearance
  - ANSI N13.12

Class A Options

- Risk based model allows environmentally responsible options:
  - RCRA Subtitle C or D facilities
    - Low Activity (LARW) and low activity mixed wastes (LAMW)
  - Uranium mill tailing impoundments (UMTRCA regulated sites)
    - HVLA
    - TENORM

Class B and C Options

- Create a national source recycling program
- Disposal not storage
  - Security concerns
  - Control long-term solution
- Consider inclusion in DOE GTCC program
  - Small volume

Storage Option

- Centralized Storage (not preferred)
  - Only when there is a proved societal advantage
  - Based on same criteria as disposition
  - Concern for additional costs and doses to workers and public from management and transportation

Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Nuclear Waste
170th Meeting

Docket Number: (not applicable)

Location: Rockville, Maryland

Date: Wednesday, May 24, 2006

Work Order No.: NRC-1056 Pages 1-244

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON NUCLEAR WASTE

+ + + + +

170TH MEETING

+ + + + +

WEDNESDAY,

MAY 24, 2006

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ROCKVILLE, MARYLAND

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The Committee met in Room T2 B3 of the U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, at 8:30 a.m., Michael T. Ryan, Chair, presiding.

PRESENT:

MICHAEL T. RYAN	ACNW Chairman
ALLEN G. CROFF	ACNW Vice Chairman
RUTH F. WEINER	ACNW Member
JAMES H. CLARKE	ACNW Member
WILLIAM J. HINZE	ACNW Member

C O N T E N T S

P R O C E E D I N G S

(8:31 a.m.)

CHAIRMAN RYAN: All right. Can we come to order, please?

The meeting will come to order. This is the second day of the 170th meeting of the Advisory Committee on Nuclear Waste.

My name is Michael Ryan, Chairman of the ACNW. The other members of the committee present are Allen Croff, Vice Chair, and Ruth Weiner, James Clarke, and William Hinze.

During today's meeting the committee will continue to conduct a working group meeting on low level radioactive waste management issues.

Mike Lee is the Designated Federal Official for today's initial session.

The meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. We have received no written comments or requests for time to make oral statements, save one, which I'll mention in a minute, from members of the public regarding today's session. Should anyone wish to address the committee, please make their wishes known to the committee staff.

It is requested that speakers use one of

the microphones, identify themselves, and speak with sufficient clarity and volume so they can be readily heard. It is also requested that if you have cell phones or pagers you kindly turn them off.

Thank you very much.

We have had one request to make a short presentation to the committee from Jim Lieberman, and that will occur after our first panel discussion. Jim ha asked for a few minutes to present some information relative to very low activity waste, and we'll be happy to hear his points of views.

A couple of items on the panels today. On Panel 1, Bill Sinclair from Utah is not able to be with us today, and so he is not here.

Panel 2, Mike Elsen also has had other schedule changes that preclude him from being here, and we're happy that Dr. Judith Johnsrud is back from some travel in Russia and Europe and will be with us on Panel 2.

So that's an update. An item from yesterday. For anyone that wants a copy of the low level waste white paper that we transmitted to the Commission, please make your wishes known to Mike Lee.

I also mentioned briefly yesterday that we are having an expanded discussion of the NRC's de

minimis position as it was presented some years ago. New appendices which we've added summarizing DOE approaches to managing defense low level waste. We've completed the appendix on the recent staff technical assistance projects in bibliographic form.

We've added for reference the Advisory Committee on Reactor Safeguards' letters that they've written on low level waste over the year, of which there are 12, and we've corrected some typos and the usual editorial items that one finds.

The committee will issue a NUREG. It will be No. 1853, some time in the summer of 2006, which will be the historical information on low level radioactive waste in the United States.

I might also mention that Todd Lovinger from the Low Level Waste Forum is sitting in for Bill Sinclair and is joining us and will be a participant on this panel, and we'll be happy to take any information back to the forum and other members and inform us of anything that he might want to follow up on thereafter.

Welcome and thanks very much for sitting in. We appreciate your being with us.

For this morning's panel, what I thought I would do first is remind everybody of the questions

that we've put forward to try and address the panel, and let me finish introducing everybody on the panel first.

Mark Carver from Energy. Mark is here to the left.

Julie Clements from the U.S. Army Corps of Engineers. Julie, welcome. We're happy to have you here.

Joseph Ring from Harvard University. Joe, welcome.

Steve Romano, whom you all from yesterday from U.S. Ecology, and having report, again, from South Carolina, is here on this morning's panel. These are the couple that we'll have today.

Come on. I love it when computers take time to warm up.

Okay. The questions that we developed in our prospectus for this working group, were there any actions, regulatory or industry initiated that can or should be taken with regard to specific issues and low level waste?

We've touched on a few yesterday. First is greater than Class C waste, sealed sources, and the items of storage, disposal, tracking, and security came up. Class B and Class C low level waste,

disposal availability and cost. We heard a number of comments in that area. Depleted uranium, disposal options for those kinds of materials.

We've talked and touched on the issues of extended storage of low level waste, low activity waste, and very low activity waste disposal options. We'll hear a little bit about that from Mr. Lieberman in a while. On site disposal, waste dilution. We heard a couple of comments on that subject, and anything else you might think the committee would benefit by hearing.

What actions could be taken by the NRC and other federal and state authorities for that matter, as well as by private industry and national scientific and technical organizations to optimize the current management system of commercial low level waste and improve the future outlook.

Which of the following investments in time and resources would like yield the best benefit, changes in regulations, changes in guidance, changes in industry practices or other. I think we referred to that at least in part yesterday, and I'll be curious to see if it's reinforced; that it's best to keep it simple and do the simple things first, which is change guidance, change license conditions and

permits and have individual submittals for specific issues and problems, those kinds of things, but we'll explore that some more today.

What are the key safety and cost drivers and/or concerns for your organization relative to low level waste disposal?

Fourth, what are the unintended consequences that might result from postulated changes identified in the questions above? And that's sometimes hard to read, but I think it's helpful and important for the staff of NMSS to have any insights you might have of how things might be linked.

We all know that the low level waste definitions are linked to many other regulations. So whatever we come up with is a good idea, will have to be explored and tested to see if there are any unintended consequences. So any insights you can offer there I think would be helpful.

Lastly, if you assume that the legislative and regulatory framework remains unchanged, what would you expect the future to look like regarding the types and volumes of low level waste streams and the availability of disposal options for Class A, B, C, and greater than Class C waste, say, five years from now or 20 years from now?

I think we've got some insight at least from the power industry, from Ralph Anderson yesterday, who presented some projections for the nuclear power industry, including decommissioning now later out in time in the 2030 time frame and beyond. So we had both cost and volumetric information at least for that segment. But others who deal with other segments of waste generation might have some additional insights.

And finally, how might potential future disposal scenarios affect low level waste in disposing in the United States in terms of the regulatory system's reliability, predictability, and adaptability, the regulatory burdens, including cost on generators, and safety, security, and protection of the environment?

So pretty broad questions to finish up, but I offer those to you to think about as you make your comments, and I hope each of you will make a short presentation. Let's see. Just to kind of set the stage, we're now at about two hours and 15 minutes. So if you each wanted to take ten or 15 minutes and then open it up for discussion and dialogue and questions from committee members and so forth, we'd be happy to do that.

In no particular order, other than alphabetical I was going to suggest, Mark, if you would lead us off, we'd be happy to hear from you.

Again, Mark is from Energy, and we'll hear his views.

MR. CARVER: Do you want me at the podium or does it matter?

CHAIRMAN RYAN: If you're comfortable in your chair, that's fine. As long as we can hear you in the microphone, we're off to the races.

Thank you.

MR. CARVER: Okay. Can everybody hear me?

I was asked to come to speak and discuss the utility perspective for low level radioactive waste. As a big utility fleet of ten reactors, we have several issues when it comes to low level radioactive waste as well as the dry fuel storage. The cover page discuss background information, waste disposal availability, our RAD waste liability, strategic outlook and scenarios that we have, the prerequisites for effective implementation for our utility, initiatives including storage initiatives, large component and irradiated hardware issues, and a summary.

The background information. Everybody

knows most everything that's been covered yesterday, but we deal with New York and Massachusetts who don't have a compact affiliation. Arkansas, Louisiana, Vermont, Mississippi are in three different compacts. Barnwell is due to close in 2008. Currently EnergySolutions accepts Class A waste, not all Class A waste.

Numerous state processors throughout the U.S. can provide consolidation to some activities.

You're right. Again, there's a little echoed affiliation, Pilgrim, Massachusetts, ANO, Central Interstate Compact, Fitzpatrick, River Bend, the three Indian Points utilities, Vermont Yankee and the Texas Compact,Grand Gulf, which is in the Southeast Compact, and Waterford 3 in the Central Interstate Compact.

Several issues with the compacts we discussed on Monday. They provide a lot of insights to where we've been and where we're going.

As far as waste disposal availability, I don't want to belabor all of this, but Class A waste, Barnwell and EnergySolutions; Class B and C at Barnwell for the utilities I deal with; closure Barnwell, 2008; Southeast Compact, no potential site; Texas Compact, license no earlier, construction no

earlier than 2009; Central Interstate Compact, we're finishing up with some litigation settlement within the State of Nebraska and the Interstate Compact Commission.

A little bit of too many graphics provided there.

(Laughter.)

MR. CARVER: As a utility with Sarbanes-Oxley, we've been very aware of what goes on to make sure we maintain and provide a RAD waste liability to the upper management of our utility as combined through plant costs and the increases that have occurred since 1998 and in some cases have doubled.

Tracking procedurally based, we provide waste generation reconciled monthly for each utility based on what we ship to processors and what we have stored on site, and we do have liability goals that are set for each utility.

We have strategic scenarios. These are basically scenarios that are placed out there for each one of us to look at as far as initiatives, and we built specific initiatives from each scenario: Barnwell closure in 2008; EnergySolutions obtains license for accepting all classes of waste. It's probably the best scenario for us right now, but it's

probably very low probability.

Scenario 2, the Barnwell closure in 2008, no more compacts open at disposal site.

Scenario 3, we discussed Barnwell closure only.

Scenario 4, no disposal available or due to economical decisions. So utility decides not to ship waste. That is in both case, whether Barnwell closes or not.

Scenario 5, Barnwell allows continued access, business as usual.

From there we built our initiatives. For that we decided we would have some prerequisites for effective implementation. Along with that was utility had to have adequate budgeted funds, consolidated approach for implementation of our strategies, consolidated use of long term contracts. We felt that was very important. An aggressive schedule for disposition of waste. Management support for whatever appropriate strategy is utilized at the utility.

Review and oversight of the implementation by upper management is very important for us. We have a focus peer group that involves every utility. Proactive leadership in the development of disposal options, and aggressive programs within our utilities

focusing on RAD waste reduction and standardizing our practices.

Then from there we developed our initiatives, the long term agreements for processing and disposal. We're maximizing our Class B and C shipments to Barnwell, especially irradiated hardware. Storage capacity and volume evaluation for each site was done to the end of life, including Class B and C waste, irradiated hardware, and Class A waste.

Also, we've determined that we have a very low amount of mixed waste, but it may be an issue later on.

Storage facility construction or modification. We have storage facilities at each one of our utilities for all wastes up to a certain level of combined Class B/C waste storage. We have one utility that would need to take into consideration within five years to start looking at building or constructing a disposal, well, actually a storage facility on site.

We had looked at storage for decay option, activity distribution over a larger media, which meant we would run our filter medias at a shorter frequency to basically maintain it as a Class A waste so that we did have an option for disposal or processing, and a

perpetual waste minimization program at each site.

Part of the NEI team that was operating last year and continues to slowly work towards helping the industry as far as initiatives on low level radioactive waste strategy, working with EPRI on some source term initiatives as well, which may affect that.

And as far as everything goes as far as the utility goes, we feel that supporting initiatives on changing guidance, updating guidance to make things easier for the utilities as far as the Class B and C waste goes would probably be the best, as you mentioned earlier.

What we did was we looked at and evaluated the Class B and C residents and filters, storage of those filters on site based on dose rates and activity levels. We considered the fence line considerations.

We looked at whether we would store processed or unprocessed waste. We also looked at the possibility of storage at another one of our sites. One utility has done that. It's something that is being led by our corporate office in White Plains. It could provide some savings as far as storage and transportation goes.

Large components. We also looked at that

as well. Utilities have a mixed bag of what actually occurs in the industry. We have a large component issue at Entergy in the most part because we do store a lot of them on site. We don't get rid of them.

The decisions have been mandated and evaluated through our utility. We haven't been standardized, but we're looking to standardize that. So we're looking at projects to utilize more effective decision making, different options in evaluating the use or partial use of decommissioning funds.

The other potential options are areas that we've been looking at, including foreign companies to come in as well to help us with that, as well as the U.S. processors that exist currently in the United States.

Rated hardware. We do periodically inventory that for a RAD waste liability standpoint. It's continuously completed at each utility. The stored liability is based on equivalent volume of today's disposal cost, basically what it would take at Barnwell to dispose of the waste.

And each utility ranges from a few hundred thousand to more than a million, and currently we're doing an irradiated hardware campaign at Pilgrim, followed by Vermont Yankee, and then we have two more

in 2007. This is mainly a BWR, a boiling water reactor, issue.

I do have a few other slides that were in summary. I guess I'll try and go back to it. I'm having some difficult with the slides.

(Pause in proceedings.)

CHAIRMAN RYAN: Chris, rather than have you just kind of read to us, why don't we just go ahead and take a few minutes break in place and we'll just reconvene at nine. That will give Theron a chance to figure out what happened.

So take about a seven minute break here and come right back at nine o'clock.

(Whereupon, the foregoing matter went off the record at 8:50 a.m. and went back on the record at 8:58 a.m.)

CHAIRMAN RYAN: I've been reminded to speak directly into the microphone myself. So I would ask others to lean in so everybody can hear. The room is full, and it's helpful if we do that so everybody can hear.

And let me turn it back to you, sir, Mark, and take us away.

MR. CARVER: Okay. I'm going to try. I'm not going to try and go back to it because it might be

a little bit more difficult, but the slide that had the irradiated hardware, it did mention the few hundred thousand to more than one million, and I just wanted to make sure everybody understood that was in reference to dollars as far as liability goes.

CHAIRMAN RYAN: And dollars for disposal?

MR. CARVER: Correct, and equivalent dollars to today's disposal prices. That's correct.

And I got off the summary slide you got me on, but I apologize for that. So here it is, the third bullet. That should be dollars.

Under the summary, I know that this first one is probably going to be something that even from Monday's meeting that I attended may impact a lot of people as far as how they feel, but as a nuclear utility we felt that we have large pockets, but we do know that there's risk to everything that we do, and there are some issues as far as whether we feel there's immediate waste disposal capacity issues.

And as far as no immediate issues, I meant that till June 2008 that's the first time that Class B and C will be a stretch for us to get rid of and at least process and store. That is the first major capacity loss for us as a utility.

The ongoing initiatives that we have going

on for now range in a five to ten-year plan. So we feel like we've been planning for this throughout the years. We continue to update our five and ten-year plans to make sure that we can mitigate issues that come up, such as this issue with Barnwell's closure.

We also maintain the outlook for further disposal capacity. We understand that we provide a good bit of support to the industry for initiatives that are ongoing. We know that the capacity for compact intervention as well as federal intervention may be a time limiting issue. So we look to support other groups that help us with regulatory changes as well in that arena.

We know that energy solutions, capacity is not fully unlimited. We know that there is some intervention that needs to be occurring at the federal level. We utilized NEI. We have supported EPRI in their efforts for collecting the data for the GAO. We look to our vendors as well for strategies that they may support us with, as well sa the United States, as well as the vendors from abroad.

Compacts. We are within the Texas compact, and we know that no activities that we discuss with them there go beyond disposal, construction, and licensing for the Vermont and Texas

utilities.

We also looked to the other companies to help generate those potential disposal sites or disposal options.

And that's my presentation. It took a little more than ten minutes. I had to break.

CHAIRMAN RYAN: Oh, that's okay. No problems. That's fine.

Next up, Julie Clements from the U.S. Army Corps of Engineers.

MS. CLEMENTS: Thanks.

Good morning, all. I'm going to discuss with you, I guess, the other end of the RAD waste spectrum. Mark talked about what I'll consider the upper end, the B, the C, and this presentation is going to be on the way other end. Specifically, I'm going to talk about the Corps' experiences dealing with disposal of low activity radioactive waste.

This is a quote from NCRP Report 139. "The RAD waste classification system is complex. It is not transparent to the public who are increasingly involved in decisions about management and disposal of waste, and it is not understandable by anyone but a studied expert."

I love this quote. I think it pretty much

sums up the RAD waste classification system, at least on the lower end that we have to deal with.

Now, if you're one of these studied experts, you might be thinking to yourself, "Well, what's the big deal? I've definitely got job security," right? But if you're a waste generator like the Army Corps of Engineers is, you'll know that the classification system is extremely difficult to navigate and could be improved.

A quick outline of what I'm going to go over. If you're not familiar with who we are, I thought it would be helpful just to spend a minute or two talking about USACE, U.S. Army Corps of Engineers, what we do, our site remediation framework, and then challenges that we encounter when we try to classify waste streams.

To try and put this in perspective, I'm going to go through at least one example of a low activity RAD waste classification scenario, and then I'm going to discuss changes that we'd like to see to the current waste classification system.

USACE is a major Army command. We are led by the Chief of Engineers who is a staff officer at the Pentagon. We're organized geographically into eight divisions within the United States, but we've

got 41 districts worldwide.

We either support or we manage numerous environmental missions. This is one of the five broad areas of work that the Army Corps of Engineers does. I'm going to give some examples of environmental missions that we support.

We support, for example, EPA in its Super Fund program. We support the Base Realignment and Closure Program, but there are other environmental missions that we manage. We manage the FUSRAP Program, the Formally Utilized Sites Remedial Action Program, and we manage FUDS, and FUDS is Formally Used Defense Sites.

In the course of all of this environmental work that the Corps of Engineers does, we generate very large volumes of low activity RAD waste that we dispose on an annual basis. I think it's safe to say we're one of the largest generators of LARW out there, at least in the U.S.

Common radionuclides that we deal with are uranium, radium, thorium, sometimes some 11-E1s, such as Cesium 137, Strontium 90. Typically the physical format we deal with is we're working with contaminated soils, and in some cases contaminated building debris.

This is the framework that we conduct most

of our remedial actions within. Most of our work is performed in accordance with CERCLA and its implementing regulation, the National Contingency Plan. Often we execute this work as the lead federal agency. This is particularly true when we're responding to releases at a DoD site, and it is often true at our FUSRAP sites.

If you're familiar with CERCLA, if you're familiar with the MARSSIM process, you understand that there's a lot of similarities between the two, the remedial processes in the two frameworks. This was not an accident. The authors of MARSSIM did this intentionally.

Both the CERCLA remedial process and the process outlined in MARSSIM starts with some sort of a preliminary site assessment where you look at a site and you look at the site history. You might make some initial conclusions about whether or not there's contamination at the site. If you determine at least preliminarily that there's unacceptable amounts of RAD contamination at your site, your next step is usually site characterization.

And it's at this point, the site characterization point, where waste streams are at least initially identified and where we at least

preliminarily start to attempt waste classification.

Waste classification is so important because that's the step that's required to determine what laws and what regs apply to that material, and we must do that to figure out how we can legally dispose the material.

If we're ever able to classify the material and dispose it off site, then we use MARSSIM to demonstrate site closeout.

Waste classification for us at least at this low end of the spectrum is so difficult because it's a two-step process. It's not enough just to look at the analytical data that's available about a waste stream. It's not enough just to look at what radionuclides are present and in what amount. We must also look at the historical information that's available about a site. We must determine how the waste was produced, when it was produced, et cetera.

Because it's important to know the source of the contamination at your site to determine the waste classification, the NCRP and others have described this system as a source based system. We have to know the source of the contamination. We have to know where it came from.

As you'll see when I go through the one

example that I have, there's a lot of shortcomings to having a source based system. It's complex, as I alluded to in the NCRP quote. At least for the Army Corps of Engineers it has not been an efficient use of our resources. We spend a lot of time and money on waste classification.

As you'll see when I go through my example as well, the current system can't be defended on the grounds of human health protection. You'll see wastes within a single category don't represent similar risks.

All of this can have adverse impacts on competition, which affects our costs, which also affects our project schedule, and in some cases, you'll see where unnecessarily utilizing valuable facility capacity at Part 61 licensed facilities.

There was a lot of examples I could have gone through. I started off with three examples, and I narrowed it down to one in the interest of time. This example is from one of our FUSRAP sites, the Maywood Super Fund site in Maywood, New Jersey. Short and sweet, here's the history of the site. Approximately 100 years ago the site operator began some processing operations. He processed material for the rare earth content and in some cases materials

were processed for their thorium content.

As a result, buildings were contaminated. Waste lagoons were created, and material was transported off site. Sometimes this was done intentionally, and some of these off-site releases were unintentional.

The NRC licensed site operations in 1954. Shortly thereafter, in 1957, the site owner stopped producing thorium processing residuals. That particular operation ceased. The site operator conducted some clean-up operations, and he consolidated the wastes that were generated during the clean-up into three on-site burial pits. These three pits were licensed in 1978 by the NRC, whereas previously the old license covered thorium processing operations. In '78, that old processing license was narrowed in scope to cover just these three burial pits.

In 1983, the EPA put the Maywood site on the NPL, and just shortly after that, Congress placed the Maywood site into the FUSRAP Program.

So the Army Corps of Engineers is tasked with cleaning up this site, and as I said, one of the steps that we have to go through is waste classification. If you look at the history of the

site, one could argue that the residuals that are present at the site are thorium processing residuals, and therefore, the waste that we generate should be classified as tailings or 11(e)(2) material.

But if you look at the analytical data at least for some of the contaminated soils at the site, you'll see that the uranium and thorium content in those soils is greater than 0.05 weight percent. So based on the analytical data, this could be source material as well.

We got some clarification ultimately from the NRC in a letter in 2001 where they agreed that the material could be 11(e)(2) based on the history of the site. Material also could be classified as LLRW based on its source material content.

Rather than impose two sets of legal requirements on the same material, we'll call all of the material tailings for all of the 11(e)(2) material, for purposes of disposal regardless of the source material content.

As I said, some of the tailings had been transported off site in the 100 years that have transpired, and as a result there are some soils out there that are contaminated with 11(e)(2). So these aren't just processing residuals, but rather soils

contaminated with processing residuals.

So the bottom line is we've got 11(e)(2) material with much lower specific activity than typical tailings, for example, tailings out of the mill. In fact, the specific activity for a lot of these soils is much less than the waste acceptance criteria at U.S. Ecology at Idaho.

USACE stepped back and looked and realized that, in fact, we are currently sending similar or identical material to U.S. Ecology, Idaho, similar or identical in terms of the physical, chemical an radiological properties.

So it made sense to us to pursue a 10 CFR 20, 2002 request. We've heard from the NRC that what we have out there is licensed 11(e)(2) material. This material, however, is very low in specific activity. It could meet U.S. Ecology's or it does meet U.S. Ecology's waste acceptance criteria. So all of this made sense to us.

We spent, again, some time and money assembling a 2002 request to dispose this material at U.S. Ecology, Idaho. We estimated dose and dose rate using TSD dose and Microshield. We determined that our critical receptor is actually the worker at U.S. Ecology's rail transfer facility who's involved with

transferring material from a gondola and placing it into trucks and then trucking it to the site. He's our critical receptor.

Using the most conservative assumptions in our modeling, we estimate that dose to this worker, the total effective dose equivalent would be 4.7 millirem per year. Again, this is our most conservative assumption. This is assuming that all of the waste we sent to the facility was at U.S. Ecology's WAC.

But, in fact, when you look at the material that we've been sending off site for the years 2001 to 2004, the average activity in the material we're disclosing off site is only at 25 percent of U.S. Ecology's waste acceptance criteria. So we expect the total dose equivalent to the -- our critical receptor to actually be much less than one millirem per year.

Just last month the NRC responded to our 2002 request, and the response that we got wasn't what we wanted, but nonetheless the response was because the Army Corps of Engineers is not the licensee and because we're not even an applicant for a license, that we're not eligible to make a 2002 request.

So currently the Maywood material,

although it's only at 25 percent of U.S. Ecology's waste acceptance criteria, because of its classification, its source base classification, at this time it cannot be exposed at U.S. Ecology, Idaho, and we can't realize the cost savings with that approach.

What would we like to see happen? In a perfect world, we'd like to see the source based waste classifications eliminated. We'd like to eliminate the need for case-by-case exemptions. We would embrace two concepts. We would certainly embrace a classification system that was based on health risks that could arise from waste disposal, and we feel that a risk based waste classification system to be meaningful, it has to also have a general class of exempt waste.

And here we're talking specifically about an exemption for purposes of disposal. We're not saying that these materials should be exempt for any reuse, but for purposes of disposal, and this would be determined based on risk and the risk would be determined to be negligible in the exempt waste class.

These views are consistent with the recommendations of the NCRP in NCRP Report 139. These recommendations have been endorsed by the Health

Physics Society, and these concepts are consistent with the recommendations of the IAEA.

What would be the outcome of having a risk based classification as opposed to a source based system? We believe you would see improved consistency. A pico Curie would be a pico Curie. That's what we say in the trenches. Right now that's not the case. A pico Curie of TENORM uranium that's considered TENORM cannot be disposed in the same way as a pico Curie of Uranium 238. That's 11(e)(2).

So we would see improved consistency, improved transparency. This might make even a little bit of sense to the public. It would be defensible on the grounds of health protection. Waste within a single category would represent roughly equivalent risks following disposition. It would allow exempt material to be handled at less cost commensurate with risk.

Our fiscal resources are pretty stretched, and we feel like we could better utilize our physical resources. Could it require changes in laws and regs? Sure. Could this take years to develop and to promulgate? Absolutely.

But as Paul Lohaus mentioned yesterday, something needs to be done with the very low level

material. Bill Dornsife said yesterday -- and I'm sorry Bill is not here to defend himself -- but he said the current system works and it works well.

I think we would argue that it sort of works, but it definitely doesn't work well.

CHAIRMAN RYAN: Thanks very much. We appreciate your comments.

Okay. Next up we have Joe Ring from Harvard, Harvard University.

Joe.

DR. RING: Thank you.

I think I bring a different perspective when I come here. I can talk about universities and medical institutions, but also can talk as a former regulator. For a number of years I was the chair of Massachusetts Low Level Waste Management Board.

So some of the comments that I bring forth are from that point of view. Being an academic, I can think about things, and they don't have to be practical.

(Laughter.)

DR. RING: Thank you for the laugh.

All right. I want to give an overview for what we do in academics in a medical institution. We do an awful lot of material work with short-lived

material. That we can do with decay in storage. The university has a decay in storage requirement for basically 365 days and less, which really allows us to manage our waste.

But that doesn't mean we don't have problems with long-lived materials. We do have problems with Tritium C14, Chlorine 36 and Technetium 99. And those pose a real big problem for us. We have denied research because we have not had access, and remember that when we deny research that usually means that we're not letting people do research on medical treatment options.

The treatment systems that we see in hospitals, for instance, Tech 99, the only way you can do that research work is with Tech 99M. The only way you can do research work with that is Tech 99. We have one of the largest research groups doing rated pharmaceutical research, and we have severely limited their research applications because of disposal access.

We also have concerns with medical sources. We do use large sealed sources, and those sources have now been around long enough that we're concerned about how we're going to get rid of them. They're starting to decay. So we haven't had a lot of

disposal because we've been using the sources, but now the sources are getting small, which means the patient treatment time is getting long. So now you have to start thinking about getting rid of that source.

We're very concerned about the access to disposal capacity for B&C wastes. That's a real problem.

I also want to give a little background on how materials are used in the research environment. I like to say that research is used, a hassle factor determinate, when they want to use materials. Right now I know that researchers use alternative methods because they are a lot easier to use, but they are not environmentally, population risk responsive. They know that they're working with things in the laboratory that will kill them. That is something that they will tell you.

Picric acid, they're working with it. It can kill them, but they can't work with radioactive materials, and it's difficult. So that's something that we all need to think about when we move forward, is we have to think about risk.

They also look at cost. They know that it is cheaper to get rid of things that are hazardous material. They also know that they can get rid of

some of the substitutes for radioactive materials that they believe are more hazardous that the research just hasn't been done on by throwing them in the trash.

That's not responsible from a point of view for overall population risk. Costs are certainly an important piece. We have lots of government regulations about how we have to spend grant money. Grant money has to be spent then. If I can't do disposal option for materials, I can't let the research go because I can't charge them in ten years or two years for waste disposal.

The other side is that costs have gone up a lot. I'm going to give you an example, which should come around a couple of times. We had a research group working with Chlorine 36. Years ago their waste disposal budget was $1,000 a year. Two years ago they came to us with a drum of waste. We bit it out to get rid of it. It was $27,000. They had three of them.

That's a sizable amount when it's not supported by the grant research. In addition if we got rid of that, we would have had surcharges, and then the state would have come back with an additional surcharge that we would have had to pay for about five years.

So those costs all add up, and we have to factor those into the way we do business. We, as well as the researchers, are concerned about site availability. Medial research is growing to the point where as a radiation safety officer it is almost impossible for me to comprehend.

My particularly institution just added a 750,000 square foot research building which was supposed to be something they would fill over the next three years. It was filled in a year and a half, and they're already renovating and it's two years old.

They're building another one on a different campus, and it's bigger than that. I'm told that they already have that filled. Research work is growing. We're concerned about what are we going to do with the materials that come out of that research work, and we're seeing it increased in long-lived material. Tritium and C-14, for some reason and we haven't figured out why, is growing, and that's the only one of the long-lived materials that we do allow.

So our current status of Class A waste we can get rid of. Capacity exists. Very concerned about the lack of competition. WE have very few options in our book. That means that we pay a lot more. We k now the comparative cost difference

between hazardous materials and radioactive materials. Hazardous materials are a whole lot less expensive to get rid of, and I think that my example of the $27,000 drum stands on its own. That really makes a cost concern for researchers as they're trying to put it into their research budgets. That kind of cost does not get readily reimbursed on research grants.

We are concerned about the life span issues with the existing sites and the closure of the Barnwell site and other low level waste policy restrictions. Barnwell closing in 2008 is a clear example, and the access capability for Class B and C waste, which would be our larger sources in medical and physics research.

We do have existing sources. I have the ability to get rid of the sources, but some of the smaller institutions do not. Some of the problems come around academics who believe that even though they retired ten years ago, they need to keep the sources. You want to get rid of them, but you can't. You can only get rid of them after the researcher leaves. I can see a number of those things coming along as early physics researcher in radiation science start to retire.

What do I do with those sources? I don't

have options to either keep them or dispose of them if I look five years ago. So that really posses a problem for me. At medical institutions they don't have the privilege of keeping them or storing them, and they don't have the money to get rid of them. So that really poses a big problem for medical institutions.

So we do have concerns over Class B and C wastes and long term over disposal access.

I think the regulatory structure, and here's where I can really think about things from my management board perspective. We've heard a lot of discussion about the Low Level Waste Policy Act. From my point of view, it was set up to redistribute the responsibilities to the generating states and to reduce wastes.

Contrary to some of my colleagues, I believe that the Low Level Waste Policy Act worked exceptionally well. However, I think it worked so well that it doesn't apply, and that will come up on the next slide.

We have drastically reduced the volume of the wastes. We not have an economic consideration on our waste disposal sites in many ways. We've decreased access. That's a concern. There have been

significant expenditures for no new sites really in the U.S. That comes from somebody's pocketbook.

The the concern, having come from a state position, no matter what you do with the Policy Act, you've got to remember that you can't penalize states, which really poses a problem.

Your options with the Policy Act are to revise it or repeal it. I don't think those are going to happen because you can't protect the states that have done something and revise or repeal the Policy Act. It's just not going to happen.

But I think that there is the possibility that we can look at things a little bit differently and possibly use DOE facilities specially for the B&C wastes to manage the facility or to manage the waste preferably in the greater than Class C waste. The increased volume on that would be exceptionally small, and the site is designed for waste with a higher classification.

One of the other possibilities as I look at it is is it possible to use federal land operated by either a federal entity or a private entity to manage low level waste? I think that's something that long term we may need to think about because the economics may not necessary be there to manage

radioactive waste facilities across the country.

I know there was discussion of what we in Massachusetts call the boutique facility, very small capacity, but cost was very high.

The regulatory model. Julie started off for me very nicely. I think it's overly complicated. The classification system is pretty difficult. It's based on source and disposal is based on, if you will, legislation. Your options are depending upon where the waste was generated. You can figure out which rule to go to to figure out how you can dispose of your waste, and it is very difficult for even a skilled person to figure out.

I believe that over the extended period we should seriously look at a risk based classification and disposition model. We should harmonize the radiation waste program with nonradioactive waste disposal models at least for the Class C. It may not have any impact on the -- I think I said C. Class A is what I should have said.

It shouldn't have much of an impact on B and C waste, but it could and should on Class A waste. When we revise the model, I believe that we should consider security, public health and safety, protection of the environment, total overall risk and

cost.

Many times I see that we do not look at total overall risk as well sa we should and that's just something that I would like to put out there. I think we cold do revised model based on NCRP-16. We could allow the disposal and record sites in compliance with EPA models for Class A waste.

I believe for the very short-lived materials we should look at a Texas style exemption for disposal of short-lived materials and municipal waste facilities, given some classification.

I also believe that we should look at clearance. For instance, NCN-1312. I put that into the university's license many years ago. I understand that I was the first licensing in the country to do that. That has had great advantage for us. We used that when we were decommissioning a 50 year old cyclotron, and we needed to know what the bottom level of things that were contaminated was. We were able to send exceptionally high grade copper off of recycling at an enormous cost savings to the university,b ut more importantly, we weren't getting rid of very good quality grade copper.

In the Class A, I think that the risk based model would allow us to use RECRA D or C

facilities for the low activity and the low mixed waste activity. We could also use uranium mill tailing impoundments for the high volume, low activity wastes or the TENORM wastes.

Class B and C, I think it would be very useful to look at a recycling program for sources. Institutions like universities and hospitals have sources that they no longer use that other institutions are looking for, and also it turns out that they don't have enough money to buy the new source.

It would be great to connect the two up and recycle the source. That is not an unusual thing. There is an informal system like that set up, but it does not work as well as would be ideal.

I don't believe that we should look at storage as an option. Operationally, universities and medical institutions just don't have facilities space to do storage. There are security concerns with that.

Space is so tight on the facilities that I support that our waste program is on a campus 40 miles away from Boston and we have to truck everything in and out. Disposal is really the only long-term solution.

Storage when I was in the Massachusetts

Board was certainly not well received by the members of the public, and B&C said before I believe would go into the greater than Class C, it's a very small volume, and I think that would be a reasonable solution.

Again, I want to leave on this storage option, having been subject to a lot of the discussion within Massachusetts in the I guess it would be polite to say not so very friendly phone calls at home about centralized storage. This should not be a preferred method. It should only be used if we can find an overall society advantage. It has to be based on the same criteria as disposal and not operational facilities, which is the usual model that people propose.

We need to be thinking about total costs, dose, and security, as well as public doses from management and transportation and repackaging.

Thank you for the opportunity to present a different point of view.

CHAIRMAN RYAN: Thanks very much. That's good insight from a different regulated component of the community. So thanks for being with us.

Next up on the list is Steve romano, U.S. Ecology.

MR. ROMANO: Thank you.

I don't have slides today. I was going to make a few remarks based on some of the comments made.

CHAIRMAN RYAN: All right.

MR. ROMANO: I think I've probably got you with enough slides --

CHAIRMAN RYAN: Maybe we can get the lights up a little bit.

MR. ROMANO: -- on my behalf yesterday.

I'd like to make some general comments. I will start with something that I think has come out in a number of the different presentations, is that cost is an issue. We've heard that in a number of different areas. We've heard from Larry Camper and what's available to him and his stretched staff, as I would put it. It's an excellent group that I've known and worked with for some years, and I've also noticed the gradual reduction as that staff ha shrunken down.

The same resources, resource limitations apply to the Corps of Engineers and other federal agencies, the Department of Energy and others who have limited dollars that they're asked to stretch to clean up a large backlog of sites.

Many of these programs are anticipated to be going on for many years. As you look at the SDMP

sites within the backlog of NRC responsibility, it's the reality that if it costs a lot of money to clean up a site versus less money, it's going to get done more rapidly on a multiple site basis, even on an individual site. There could be a multi-year clean-up. Cost is an issue.

So with that as a bit of a background comment, I'd like to address first low level and very low level and then go to the higher end of the spectrum because there's general agreement that while Class A, at least there are more options than perhaps for some other things. So at the low end of the spectrum, there are savings possible by using other kinds of sites.

And my perspective working for a company that operates both RECRA and Atomic Energy Act disposal sites is that they're a safe, protective disposal available on either kind of site, and I think sometimes folks find themselves in too narrow box, thinking the only way we can protect ourselves is by running everything through the Atomic Energy Act structure, and I don't believe it to be true. I believe either structure can work.

And from a risk based perspective, I think that deserves careful consideration. As Julie Clement

points out, Corps of Engineers is operating under CERCLA largely, and the actions that are taken under CERCLA are not subject to NRC licensing actions in many cases, and as was pointed out, large volumes of waste have gone to RECRA sites in the low activity column via CERCLA actions, via the licenses that these RECRA sites have.

Every once in a while as the example Maywood pointed out, there are existing laws that form some characterization classification restrictions that don't allow risk based approaches to proceed. So from our perspective, I guess we would offer two suggestions that we think makes sense.

One is that the exemption process does work. The exemption processes have been in place for many years for a lot of materials. You know, one example there is what's been going on for many, many years from the biological waste at a certain level are allowed to be disposed of via the sewer systems, via incineration at a very low level.

There's a long history of exemptions being used for materials and exempted from Atomic Energy Act handling. I didn't bring my full list of examples, but there's a lot of them. I have the example on our Idaho license where the whole list of consumer

products for many, many years exempted devices and consumer products have been deemed to not require close tracking under Atomic Energy Act regulation.

Very important, these risk based, health based judgments, but the President has been there for a long time.

As far as the future, I would suggest with the exemption process, there is an increased desire to use it. I believe it has been proven that it can be done in a responsible manner with careful safety analysis, with regulators involved, with the public involved.

RECRA has public involvement requirements just as the Atomic Energy Act's implementation includes, and I also agree with Julie's comment that longer term it makes sense to work towards some more general approaches to come to risk versus source based definitions.

But that's not going to happen soon. It's not going to happen overnight, and I believe it would be the wrong approach to say that we should stop proceeding down the exemption path because there is a roader global solution that ought to be pursued instead. The experience that many of us went through on the old below regulatory concern rulemaking and the

collapse of that effort, I mean, I think it was so resounding a collapse that nobody dares use the same words anymore. So now we talk about clearance and other kinds of things.

These kinds of approaches make sense, but there is a danger in ignoring the incremental in favor of the theoretically more perfect. So my recommendation would be to perfect, regularize the approach to exemptions to support the staff. My view would be that staff allocations to that kind of work where you're working to expediting real projects, cleaning up against these STMP sites that have been there for many, may years in certain cases, that that's a good application of resources to address these kinds of sites, at the same time looking towards longer term risk based reclassifications that might make sense.

One other point that I would make here is that there's a limited number of Atomic Energy Act sites out there, more limited as we go forward. You've heard this proposal in Texas. I think there's many folks that are hoping that process can move along and can continue to move among, but that's the only project that's out the recurrent right now for a new Atomic Energy Act licensed facility.

And you heard about Ward Valley yesterday. You can go down the laundry list. I believe the bejers were put together by NNE in the range of $750 million were sent to fail in California and Nebraska. At two previous sites in Texas it didn't happen. Michigan, North Carolina, Illinois, Pennsylvania, New York. These efforts didn't work.

And while those things didn't work, other things have. A site was developed in Utah by the folks in Envirocare that has provided a great service that otherwise would not have been met had the country been solely relying on the compact process, and RECRA sites have stepped in and also provided services at the lower end of the spectrum.

Turning to the higher end of the spectrum, a couple of perspectives there. I don't understand as fully as I'd like to what the opportunities and potential is for using 61.58 for other ways of considering waste classification.

I was around working in the agency in the early to mid-'80s as we were looking to send guidance out on what Part 61 meant and tracked through myself the development of Part 61 through how that whole waste classification system was built, and indeed, much of the Part 61.55 classification tables were

based on certain assumptions and developing a regulation that could uniformly work for humid and arid region sites.

And there are conservatisms in there, and I believe as one looks to an arid region site, there may be possibilities under 61.58 to reach some different conclusions about classification.

I don't pretend to understand what the right direction is there, but it seems like a promising dialogue to be had, and it seems like one to be pushed forward with some broad based stakeholder comment on how that can be useful.

Disuse sources is something else that we've tracked carefully. While our Richland, Washington site is restricted to taking only Class A, B, and C waste from the northwestern Rocky Mountain compacts, we are able to take radium water from anywhere in the nation because it's not regulated under the compact system. You know, it's norm.

And in fact, at Richland we do take a high activity radium sources, higher than the limits of the other sites, it being an arid region site. And one thing we've noticed there nd perhaps to Joe's comment, we noticed a disconnect between when folks say that sources are waste and when they start saying we have

waste to get rid of and then they say, well, no, that's not waste. These sources are going to set here on these shelves, and by gosh, we're going to have a use for these things one day.

In reality, the folks might have retired or that thing might not have come off the shelf for ten years. It may or may not be in a good lead pig containing it. DOE's efforts on the off site source recovery program, I believe, are moving in the right direction. I understand NRC staff has been involved in those discussions.

In general, I think that the sealed source issue is one that has both the health and safety and the security aspects to it, that perhaps could use some greater attention, and in general, I do not believe storage is an appropriate approach.

The one area where at least in my mind I draw a bit of a distinction I that I think there you have an existing federal program set up at Los Alamos National Laboratory to handle these sources. That may be one area where I would carve out an exception and suggest that maybe there's an existing federal program that could provide a safety valve for those kinds of matters.

So I apologize for bounding around a

little bit. Those are my thoughts.

CHAIRMAN RYAN: Thanks very much, Steve. We appreciate it.

And again sitting in for Bill Sinclair is Todd Lovinger from the Forum.

Welcome, Todd. thanks for being with us.

MR. LOVINGER: I have taken some excerpts from a presentation that I made at the Organization of Agreement States. I"m going to o through them rather quickly.

A couple of quick caveats. Despite what the sign says, I do not work for the Utah Department of Environmental Quality. I am the Executive Director of the Low Level Radioactive Waste Forum.

And as the Executive Director of a national organization that is comprised for entities that include various stakeholders, such as federal agencies, states, compact generators, and so forth, I need to just clarify up front that unless I otherwise state, the views that I'm stating are those of myself and not necessarily attributable to the organization.

The last caveat is while Bill is regulator and has a vast experience of scientific and technical knowledge, I am actually an attorney and have a policy background. So I'm going to come at this from a

little different perspective and offer a different point of consideration.

CHAIRMAN RYAN: Actually it's probably a great addition. So we're happy to have that different perspective and thanks again for being with us.

MR. LOVINGER: Very briefly the Low Level Waste Forum originated as technical assistance from the U.S. Department of Energy upon passage of the Low Level Waste Policy Act and its 1985 amendments. The law required technical assistance to the states and compacts, and the forum was the organization that was intended to do that.

As originally established, the forum was comprised exclusively of states and compacts, and its purposes were originally to facilitate state and compact implementation of the act and the 1985 amendments, as well as to promote the objective of low level radioactive waste regional compacts.

In 2001 we reorganized, incorporated and began operating as an independent, nonprofit entity, and we extended our membership to include federal agencies, Generator Facility Operators Association, and all interested stakeholders.

And this slide gives you a good idea of the vast and diverse viewpoints that are brought to

the table within the organization.

Some of our activities include the hosting of two meetings a year, the putting out of publications, newsletters which I've put some on the back. We've put together an annual summary report which provides a brief snapshot, one page, of what's going on in various states and compacts through the regulatory agency as membership.

We provide liaison services amongst the different organizations, and we also do special working groups and committees when issues arise.

What I want to focus on is what we call a discussion of issues statement which was passed by the organization, adopted on September 22nd of 2005, and the document originated because we found ourselves at our meetings looking at various position statements that were being passed by different organizations, some of which we've heard about, the American Nuclear Society, the Health Physics Society, and the issue was raised that it would be appropriate, given that the voting members being the states and compacts of the forum, are the officially designated governor appointees and compact commission appointees who have direct authority for this issue under current law.

The reason that we titled our document a

discussion of issues statement instead of a position statement is it really does two things. One, it provides limited consensus views on certain issues because we tend to try to act under unanimous consent.

But the other thing is it's intended to serve as an outline to frame discussions, such as the one we're having today, and one that has been had at many meetings on the current status and where to go, and to identify potential issues which must be looked at and considered when having these types of discussions.

And I encourage everyone to take a look at it. Copies are in the back, and I know we've provided copies to the committee.

Some of the consensus points that we came up with. The first one is when looking at the federal law, we came to agreement that the Policy Act was designed to be flexible and to allow for change in response to events and circumstances. And in our document, we listed some examples of that, the merger and realignment of compacts and states, the coming on line of what was previously known as Envirocare of Utah or is now Energy Solutions' Clyde facility after the passage of the act, and what we just heard about, reduced volumes. That occurred earlier on or midway

through the process.

I think in the last couple of days we've also hear about ongoing changes that the act has accommodated, such as the use of RCRA facilities, mill tailing sites, the 20.202 document, and so forth that are examples of the continuing flexibility of the act and the act's ability to change to ongoing situations and circumstances as they come about.

Another consensus point that we came to is with regard to access, and the point that we want to make here is that currently disposable access exists for all classes of low level waste in all states in the country. In contrast, the federal high level waste in greater than Class C, disposal programs continue to encounter obstacles, delays and uncertainty.

The intent here is not to criticize the programs, but rather to point out that as we heard yesterday, 26 years ago this program originated because the governors of the three cited states were threatening to close their borders, and through the operation of the act and the system that we have today, states and compacts have been able to provide for continued access which is an important point that's often lost in the discussion.

We also came out with a couple of positions. To review them very briefly, commercial low level waste is well regulated and managed safely. The fact that we have individuals and entities from academia, states, compacts, disposal operators, public interest groups and so forth here today is a testament to that.

The second is that the system is flexible. There's no immediate crisis, but we must insure all current and future disposal needs are mete, and this was an intent to recognize the potential lost of access if Barnwell does close as scheduled and no alternative disposal pathways are developed for a significant amount of states for BC waste.

And the point that we want to make here is while that is a problem, it needs to be considered and looked at, it doesn't represent an immediate crisis that necessarily requires a complete overhaul or complete throwing out of the accomplishments that have been made to date.

In June 2004, the GAO did a report which most people are aware of in which they surveyed generators, and most of the generators being the larger utilities indicated that they have the ability to store this waste indefinitely.

We acknowledged that that's not optimal, but we want to point out that it doesn't present a public health or safety risk, which is an important point to make.

This is a slide that's included in the document. It's a table taken from the MENS system, which basically shows the reducing volumes and the generally low volumes of Class B and C waste that are generated presently.

This third position is what I want to focus, and it goes to the heart of what we're talking about, and that's when evaluating alternatives, it is important to consider political realities, economic consequences, regulatory concerns, and I would add here, unintended consequences.

And what we did here was try to look at some of the proposals that have been raised, some of the alternatives, some other things that have been suggested even earlier today, and not come to necessarily consensus, but to raise points for consideration that need to be looked at.

The first is disposal of commercial waste in federal facilities, which actually was the subject of the meeting on Monday that was hosted by the Southeast Compact Commission with some co-sponsors and

which has been raised as a potential solution today.

We did not attempt to come to a consensus position on that we don't advocate in favor or opposition to it. But what we intended to do here was merely raise some important considerations, the first of which is that federal facilities are located in states, and their proposed use will encounter the same, if not elevated, local and state concern associated with the development of new facilities.

The second is that until remediation is completed at federal facilities, it will be difficult to convince citizens that they should be allowed to develop new disposal capacity for the acceptance of off-site wastes. And I think the Hanford initiative and the litigation that's going on between the State of Washington and the Department of Energy is a good example of that.

A third that I would add here in response to the comment about the use of federal land is the presentation that we heard the other day about Ward Valley and the perception that it was the federal government an the fact that that site was located on federal land, which actually ended up stopping the process in the end.

And I guess to pull this together, what I

would say is one of the committee members yesterday asked about if a lessons learned document had been done on Ward Valley, and I think that when looking at some of these other alternatives and considerations, you have to look back over the history of the last 26 years for lessons learned to determine if what we're looking at or what is being suggested is realistic and can be done.

I take to heart Steve comment that what is desired or what is seen as optimal is not always achievable, and sometimes you can get the same results by going about it in a different path.

And I agree with Steve that some of these different techniques that have been used, exemptions and so forth, are achieving the same things, but in a manner that's acceptable to the public and acceptable under the current political climate.

The second item that we looked at here was the development of commercial disposal capacity by private entities, and this is what's also referred to as the free market, and the suggestion that if the responsibility or authority is taken away from the states and given to individual companies, that they will somehow be able to achieve greater success and develop greater capacity than has been achieved by the

states and compacts under the current system.

Points that we came up in and agreement were that the act is flexible enough to accommodate the development of a disposal site by a private company either on private, state, or federally owned land, as is evidenced by Envirocare's history.

Second is that this is already permissible under many compacts. Individual state law can be and has been amended to allow private companies to develop such facilities, and we cite here the Texas as an example, and then their new season is going to be on this afternoon, but I think it's a good example.

Texas went from an earlier system where the state was the applicant to the current system where a private entity is, and it's important as a lesson learned to look at the number of applicants that actually applied, and the answer is one. Despite the fact that three of the main companies that are operating in this market today have land, only one of them submitted a license application, and that's an important thing to look at in reviewing this as a viable option or alternative.

The other point was requiring access to new or existing sites. Pressuring states with existing sites or that are developing sites to accept

out of region waste runs the very real risk of inviting new restrictions or shutting down sites altogether. For instance, the new Richland sublease includes a provision that the state may terminate the lease of the compact's exclusionary authority.

Equity and disposal burden is what originally led to passage of the act, and remains a vital consideration.

The fourth and final position is that the federal government provides appropriate assistance to states and compacts related to commercial low level waste management. We've listed some here: ACNW activities, the NRC strategic assessment. There are many others. I think the main point here is the recognition that this is and remains a saving compact program, and while there is certainly a role for the federal government and the federal government provides much needed assistance, it's important that that communication be maintained and that all parties be involved to avoid unintended consequences.

So as the conclusion, the conclusion was that the current system provides access for the management of Class A, B, and C low level waste, including disposal to all states. Changing conditions may close off disposal access to Class B and C and

some Class A waste for a significant portion of the country, but other opportunities may alleviate or eliminate this problem.

While the volume of Class B and C waste is quite small, it remains important that disposal capacity for all classes of low level waste be preserved and developed. Proposals for alternative approaches need to be carefully analyzed from the perspective of all affected parties.

I wanted to close with just an observation from this meeting and the meeting on Monday and just other meetings that I have attended. I noticed, and I was talking to some colleagues the other day, that there is a tendency when looking at the system and the current status of where we can go from here to focus on the negatives and the shortcomings, and what some people identify as the failures.

And I would submit to you that the committee has a good opportunity to look at the system and promote a more responsible use of resources to pull out the benefits and highlight them and expand upon them.

There was some discussion at the meeting on Monday about the primary objectives of the act and whether the main intention of the act was to develop

new disposal capacity. I think if you look back at the history, at the reason that the act came about, the reason that the system came about that we have today, that it's pretty clear that the primary objectives were equity, the protection of public health and safety, and continued disposal access.

And I think that all three of those remain today, and I think that that's an important point, and that what we should do is look at what's been accomplished and look at ways to continue approving the system to address the very real concerns that Julie and Joe and Mark and other people have raised, without undoing the significant progress that's been made to date.

thank you.

CHAIRMAN RYAN: Thanks. That's great insight.

Last and certainly not least, Henry Porter from South Carolina.

MR. PORTER: Thank you, Mike.

I don't have any prepared slides either, but I'll just give you some of my thoughts on some of the questions that have been posed. The greater than Class C waste, I mentioned in my presentation yesterday that we have approved and allowed Chem-

Nuclear to take some discrete amounts of greater than Class C waste.

I think it's important to recognize that there are some greater than Class C wastes that are not acceptable at Barnwell and probably wouldn't be acceptable at most low level waste sites that accept B&C wastes.

So there will still need to be a method to look at the ultimate disposal of that waste and to look at storage of that waste possibly for a long period of time, until DOE has a disposal option for that that they're required to have.

I'm glad to see that people are looking at the availability of Class B and C waste disposal. I mentioned that an Organization of Agreement States meeting probably five years ago, that Barnwell was going to close to most of the generators and that people needed to start thinking about it.

And I think it seemed to have fallen on somewhat deaf ears at the time, but I think that it's one of those issues where until the urgency is there, there probably isn't going to be that much effort placed on it. I think the urgency is here now.

Two years from now, that's not a very long time. Two years from now is when the law requires

that Barnwell stop accepting waste from out of the compact.

Depleted uranium disposal options, I know just from our experience with depleted uranium, we had a facility in South Carolina that operated for a long period of time. They processed depleted uranium for the Department of Defense. They weren't managed well, and we ultimately had to issue an order closing that facility, and EPA has been helpful in getting most of that material off site.

The state will ultimately have to do the final decommissioning on that site, and I'm sure that the state and our contractor that we hire will run into similar situations of how do we classify certain wastes and particularly as we look at the lower activity end of that. We'll be in kind of an interesting role as both the regulator and the one holding the money, looking at what's the best option for that waste.

But any guidance that the NRC can develop in that area I think would be helpful to the industry and certainly helpful to any state or federal agency that would have to address one of these types of situations.

The extended storage of low level waste.

We looked at that in South Carolina about ten or 12 years ago when the Barnwell site was originally required to close, and our staff went out and talked to the major generators in the state. And what we found at the time, and this was in the mid-'90s, was that the utilities didn't really seem to think that it was going to be a problem for their to store waste at least over the short term.

They had locations on site where they could put waste. They had programs in place to be able to manage that waste, and didn't seem to think that the cost for them to do that would be significant.

The other generators of waste, particularly the industrial generators of waste and universities, really didn't have any plans at all of how they would manage the waste, and most of them didn't have a location to store the waste, didn't have the financial resources to do it, and I think that's probably an area that the NRC staff could focus on providing some guidance that would be focused more on the non-utility low level waste generators. I think they really need some guidance.

With the increased security controls, that's going to be an issue that would need to be

looked at, and you know, whether it would be suitable to allow generators to store other people's waste might be something that's worth looking at, too.

The low activity waste and very low level waste disposal options, we've addressed that on a case-by-case basis, and that process works. It can be a headache to go through for both the generators and the regulators. We've run into situations where we think it's suitable to send a certain waste stream to a particular non-licensed facility and the facility operator doesn't want to take that waste.

So it really is a situation, and I think that's something that needs to be thought about as the NRC continues to look at this, is the operators of non-licensed facilities are not going to want something jammed down their throats that says they have to take this waste.

Now, there are facilities that are willing to take waste if a regulator says that it's suitable to go there. So I don't want that to have the appearance that we're saying that that isn't something that should be pursued.

On-site disposals, we've look at that. I think it works well for utilities and facilities that we know will be there for a long period of time that

are going to have to look at major types of decommissioning.

We actually, interestingly enough, one of the utilities that has done some on-site disposal in South Carolina is looking at the location where they did that on-site disposal as the footprint for a new reactor. We've talked to them about how they plan to address that.

Fortunately, the waste that was disposed of there had very low amounts of radioactivity in it. It was, from what I recall, sewer sludge, and really it's an artifact of the ability to have better counting, better detection, and I think we're going to continue to run into that as the science and detection of radionuclides improves, and it has improved considerably over the last ten or 20 years.

We're going to find out that things that we thought weren't radioactive we're now going to have to say are radioactive because we've detected a very small quantity of some manmade radionuclide in it.

Waste dilution, we have historically related to the Barnwell site limited the application of waste dilution really to what's allowed in the branch technical position and what's done with irradiated hardware. We think that that has probably

served the industry well. I think it has resulted in a lot of improvements in the waste forms and the packaging that's being used for low level waste.

I don't know that there are any exact actions that I would say other than, you know, continue to look at guidance on low level waste storage. I think that's an area that the staff should focus on.

Changes in regulations, I think that the current regulation in Part 61, although it could certainly use some improvements, I think that it has ben workable for South Carolina. We have operated a regulatory program with those regulations with a licensed low level waste site now for almost 20 years. So it's a workable regulation.

There have been two sites that have been licensed under that, under Part 61, although neither one of them are operating as a B&C. It seems clear that you can license a site under the regulations.

So I think the focus probably should be more on regulatory guidance and areas that could help statements and facilities that are looking at becoming licensed and that can help address some of the issues that are things like the very low activity waste.

The other thing that I wanted to mention,

I know that there's been a lot of discussion about the disposal of variable activity waste or maybe even consideration of disposing of class A waste in a RCRA Subtitle C type facility. And although I think that that could be a suitable approach in an arid type environment, we have in South Carolina RCRA Subtitle C facility that's undergoing closure right now in a humid environment, and that facility has a considerable amount of leachate that's collected from both the primary sumps and the secondary sumps.

To give you an idea of how much leachate it is, it's about two million gallons a year. It's a large volume of leachate. It has to be managed as a hazardous waste. It ultimately goes to a waste water treatment plant where it's treated and the water is released.

Our experience with the Barnwell site is that tritium is very difficult to contain. Class A waste contains tritium. I think that if tritium containing waste, which most of the utility waste is going to have some concentration of tritium in it; if that's put into a RCRA facility that has a significant amount of leachate associated with it, that's going to create a problem in getting rid of that leachate.

I know that there are some provisions in

the regulation to be able to release certain concentrations of radionuclides from licensed facilities, but I think that could create headaches for both the facility in operating the facility and in the long term.

So I just wanted to bring that up as a thought as you look at the possibilities for alternate. methods of disposal for some waste.

And that's all the comments that I had.

CHAIRMAN RYAN: Thanks very much, Henry.

Now as we know, Jim Lieberman wanted to address the Committee for a few minutes, and summarize his materials that we've been given in written form, and that will certainly be part of our record. And I think Mike Leah of the staff has made copies available in the back.

So why don't you just turn around and use the podium? The audience can better hear you and see you as well.

MR. LIEBERMAN: Good morning, Dr. Ryan, members of the committee.

I am Jim Lieberman, a regulatory consultant affiliated with Talisman, International, I appreciate the opportunity to provide comments this morning on the issue of risk informing Class 61.

I wasn't here yesterday, and I regret doing it, regret being absent because it was a very good lesson from all of the comments that I've received.

I want to speak today on risk informing Part 61, to address low activity material, the so-called very low level waste.

John Greeves and myself, on behalf of Talisman Intrenational, have been considering the issue of very low level waste in light of the cost associated with disposing very low level waste in Part 61 disposal sites.

We made a presentation this past October before the inundation of agreement states and discussed with CRCPD the need to revisit Part M of the suggested state regulations. Copies of the slides that we used with the Organization of Agreement State meeting are on the back tables.

We provided a letter yesterday to the committee that describes our post to risk informing Part 61 to address very low level waste. Briefly, from our perspective, an approach from very low level waste is to be protective to the public health and safety in the environment and provide for public confidence. Part 61, while protective, overregulates

the risk involved creating the unnecessary regulatory burdens.

RCRA sites, while they're protective, have public exceptions issues that requires exemptions with the potential for inconsistencies. Internationally, France, Japan, Spain, Sweden have or are considering approaches for disposal of very low level waste.

What is needed in our view is a risk informed, performance based approach under the Tom Gange Act authority for very low level waste disposal.

For example, given the hazards associated with very low level waste, performance objectives for the intruder could be 25 millirems for allowing a post closure period of, say, for example, 100 years. During the post closure period, the dose of the intruder could be limited to 100 millirems, consistent with the public dose limit nd the levels for restrictive release under the license termination rule.

This would simplify design requirements the way the acceptance criteria could be set based on performance objectives after doing performance assessments.

Generally, we're talking about a subset of Class A. Government ownership might not be required,

given the lower dose limits. A long-term control license similar to that being considered for the license termination rule might be used for the post closure period.

In our view the approach that we're proposing should maintain public protection at a low cost in the existing framework under Part 61. It should provide flexibility based on risk. It should add consistency with the international community. It should standardize the directory approach for very low level waste by providing a consistent approach for all states with a level playing field for all disposal operators without the need to rely on exemptions.

It should diffuse public comments of those who were concerning the lack of an AEA or Tom Gange Act regulatory system for the disposal of low level waste. It could generate public acceptance.

Our letter describes the approach in mo detail and you might consider in your deliberations.

In sum, we think part 61 can and should be modified based on risk considerations to provide a cost effective approach for exposure to very low level waste without unnecessary regulatory burdens.

I recognize the resource challenges that NMSS faces for low level waste. Very low level waste

is not just an NRC issue. States have responsibilities under the Low Level Waste Policy Act.

I suggest that the NRC work closely with the states, for example, through the National Material Program review efforts to gain a consensus and approach to be taken for very low level waste.

The process to risk inform Part 61 is a journey. It will not happen overnight. Pending a change to Part 61, the exemption process using the RCRA approach may be necessary, but in our view the time is now to start changing the process.

Thank you for your time, and I'd be happy to answer any questions.

CHAIRMAN RYAN: Okay. thank you, Jim. If you'd just maybe take your seat and we'll call you on if we need you to respond to questions.

I guess at this point we have been sitting in the chairs for a long time. I can hear a little wrestling behind me. Why don't we take a very short, ten-minute break and then come back and we'll have Q&A from the committee members and staff with our panel members, and everybody get a little pause.

(Whereupon, the foregoing matter went off the record at 10:21 a.m. and went back on the record at 10:33 a.m.)

CHAIRMAN RYAN: I'd like to come back to order, and first of all thank all the panel members for a very rich set of presentations and views, and we have I think a pretty good, clear understanding of where each of you come from. And, again, I want to appreciate all of your presentations very much.

Before we go to the committee for questions, are there any comments, followups, or additional short thoughts from any of the panel members? Going once, going twice. Okay, great.

MR. CARVER: I'll say something.

CHAIRMAN RYAN: Oh, yes. Please.

MR. CARVER: The only thing is is from my perspective I provided the operating reactors, and the fact is is that we know that with every one of the issues that we levied here and discussed, building new reactors and siting new sites within our industry is a very important thing.

So this whole overall picture is something we've been working on as well with the designs of new reactors, the URD, working with EPRI and Westinghouse and GE on their new designs. That is certainly something that we need to keep focused on, as well as everybody else who may have the waste generated -- A, B, and C, in low-level -- very low-level waste, that

we're going to have that whole full gamut as well and it's going to go for the 80-plus years.

CHAIRMAN RYAN: Oh. These issues will be with us for a while in one form or fashion. Well, thank you very much.

MR. CARVER: Or somebody else after us, yes.

CHAIRMAN RYAN: Indeed. Optimistic on my part I guess.

Let me start with Professor Hinze. Bill?

MEMBER HINZE: Well, we heard a lot of excellent ideas this morning, and I think perhaps the one that drew my attention the most was one that Henry focused in on, and that we heard from the others really without having said it, and that is the difference in terms of storage for utilities and non-utility components.

I think that we should try to hear more about how we can separate those out. And if there is a way that we can separate those out or suggest that they be separated out, and provide them the flexibility to the program to involve that. And I'd just like to hear a little more discussion about that. I think it's a real probe that could be useful to the Commission and to the country.

CHAIRMAN RYAN: Henry, what do you think?

MR. PORTER: I'll give you some more -- maybe some more thoughts that I have on that. And as I had mentioned, it has been a number of years since we talked with the larger generators in the state. But I think that there -- that the waste streams that the -- that non-utilities have are going to be somewhat different. They're going to be probably -- have different mixes of radionuclides in them. They may for certain of those generators have just one or two radionuclides that may be of interest in them.

I think there is considerations for what level of security might be required for it. Some of it is going to be lower activity waste that may not need the same level of security, or there are going to be issues with shielding the waste.

One of the issues that I think is going to be a difficult one to address is financial assurance. How much financial assurance do you need to dispose of waste when you don't know what the cost will be at a waste site? And we know that the costs continue to go up, so I think that that's something that needs to be looked at and provide some guidance on how to approach financial assurance for that.

I think that will probably help the

industry some. That way they'll know how much money they need to be putting away as they generate the waste, particularly things like research. There could be trust accounts or something like that set up and funded as the waste is generated. So I think those are some of -- you know, some of the things that would probably be worthwhile looking at.

MEMBER HINZE: Could I also follow up on that, and ask Joe -- coming from an academic institution, I was very interested in your comments. And I was wondering -- I had the impression from your presentation that Harvard is storing a lot of waste at this time. How much waste is being stored, and what kind of turnover is this? And what kind of a mix is there to that?

DR. RING: We do have a decay-in-storage program, and we do have materials that are in storage. I have a philosophy of storing as close to nothing as possible, because I can't predict what it's going to cost. The biggest problem is the sources and the materials that a researcher is holding onto because they might be used some day, even though when you go to inspect the source you have to clean the dust off of it before you can get to the source.

We do have a decay storage program where

we do things with a half life of less than a year, and I can't give you off hand the number of cubic feet that are in storage. I can rough it out and say something in the vicinity of 8,000 cubic feet is in storage at any one time. And it ranges from -- a larger portion of it is P-32, increasing proportion is Sulfur-35, and then there's a mixture of just about everything that you can think of, provided the half life is less than 365 days.

We are unusual in that we are able to do that because we've been around a long time. There was an awful lot of discussion with the regulators when we were going through the permitting process, and basically it wound up with a discussion between the lawyers. And the regulator lawyer said, "We need to be around long enough to regulate you," and the university attorney said, "What's the guarantee you're going to be around long enough?"

And they said after they realized that we had been around for 150 years longer than them, they decided that they would let us have the longer storage time. That's an unusual event. Most universities don't have that privilege.

We have the size of the facility on one of our remote campuses, but that doesn't mean we

transport. Most research universities just don't have the space. You have to do things like bring it to someplace else, and hospitals are even tighter.

Did that answer your question?

MEMBER HINZE: It did. And I appreciate it. I'm wondering, who pays for the storage? Is this -- does this come out of a general research fund, a general fund, or shouldn't I ask, or what --

DR. RING: You shouldn't ask is probably the easiest answer. We assess a charge to the researcher directly for every piece of waste, because we have to attribute it to the grant. And that's the problem, because we have to take the money for future disposal, and we can't keep it in a bank account for longer than six months.

So how do you hold things? Because we have to spend the money, and then have money available in the future. That's a real problem by the interpretation of the government accounting laws that I have to work with.

MEMBER HINZE: When Henry talked about trust fund, I couldn't see that happening in my own university. This would be a very different approach. It could be done through perhaps some research foundation, but it would be outside of the university

situation.

There's another question. I have another --

CHAIRMAN RYAN: Please.

MEMBER HINZE: One of the things that struck me -- and I think it was Todd that brought up competition -- and I'm wondering, this is -- we've heard a lot about, in the last day and a half, about the potential in terms of marketing of the disposal of radioactive waste. Why isn't there more competition in this arena? Why don't we hear just a few names? Are there more names around that I don't hear about? Or why do we have such little competition in the low-level waste disposal area? You alluded to that.

MR. LOVINGER: I'll start, and I think Steve is probably better equipped to answer it. But I think one of the other presenters, and I don't remember who -- I think it was Joseph -- actually struck upon it, which is it's an inevitable result of one of the successes of the system is that we have greatly reduced the volume of waste being generated.

And as a result, that impacts the economic viability of these facilities, and it's one of the concerns that is raised by states and compacts over and over again. And it's often seen as an attempt by

states and compacts to try to hinder success or future action, but in reality I think what it is is an attempt to insert reality. And that is, as you reduce the volume, you're going to impact the economics.

The other thing is, as we talk about some of these alternatives that have been implemented, and successfully implemented, and which I certainly don't oppose and think have given great benefit such as the exemptions and the use of RCRA facilities, and so forth, that is further impacting volume and economics.

And the Texas facility is an ideal example. The fact that they are looking at a facility that will include both the disposal of DOE waste and commercial waste and a mixed waste I think is the reality of the situation and the reality of what it takes to operate a facility.

In addition, when we've had discussions about the future of Barnwell, one of the issues that comes up is the economic viability of that facility for three states. And Henry would certainly be able to better answer that than I.

But it all goes back to my original point, which is this is an issue, and it's an important issue which needs to be looked at. But it's also an issue that arises out of a success, and I don't think that

we address that success enough, which is as a result of these changing circumstances we have greatly reduced volumes, we have new and improved treatment and processing technologies, that probably wouldn't exist were the situation not as it exists.

And this creates a more stable, better waste form, and better protection in the public health and safety. So there are benefits. And Mike Mobley at the meeting on Monday made the point, and I was thinking about it this morning when I was hearing the presentations, that one of the overarching themes that he kept hearing was not necessarily a lack of disposal access, but every conversation kept coming back to economics. And I hear that again this morning.

And I think it's a very real concern, and I think it's a very real concern. I think that some of the points that Julie raised are very real and need to be considered, and I think that some of the solutions that are being implemented to reduce costs are important and significant.

But I also think that that's also -- you have to look at the cost of doing business. And this is a highly regulated industry, and as everybody can agree we're talking about something that is not easily accepted, and there are costs associated with that.

Beyond that, I would think Steve and Henry would certainly be able to add.

MR. ROMANO: I guess I'd offer a couple of comments. And, first, to respond to some of your comments and questions on the storage end, there is limited commercial services provided for storage. It's not much. There is a biomedical storage for a decay facility operated in Salt Lake City, Utah. It's not a large facility, but they collect from generators in the west and they store it for decay, and then they take it to a -- what they call a red bag waste management company for the residuals.

There is also -- a waste control specialist does take in certain waste for storage at their site in West Texas, but there has not been a lot of demand for the service. You know, our company reached the determination that there really wouldn't be enough demand for commercial storage to justify an investment in seeking to develop such a facility. The utilities and the fuel fabrication folks can handle their own, and there just hasn't been the commercial demand.

I think it's worth noting that Ohio actually developed a storage -- assured storage regulation, and a lot of resources devoted to

something that will probably never be used.

One other point I think to make about the assured isolation storage concept as it came out -- our perspective was is that it was -- frankly, proceeded from some wrong-headed assumptions. That there is a suggestion out there that while the public is objecting to these newly-proposed low-level waste disposal sites, you know, that litany of states that tried and failed to develop sites, and there is a thought that, well, an assured storage facility will garner public acceptance.

It is our view that that's just wrong. The idea of taking a new Greenfield site, and you're going to bring waste in there, and you're going to store it there where it hasn't been in the past from multiple generators, is no -- no more likely to garner public acceptance than a new disposal facility.

In fact, for the reasons that Henry noted, the financial assurance issues about, where is the money going to be to take care of the waste, what if you get packaged generators, packaged degradation, you know, radiolytic gas generation issues have been raised about some materials, I think it would be more difficult to gain public acceptance for that.

On the disposal end -- and I go back to

the point I made earlier about, you know, the difficulty getting a new Greenfield, you know, virgin low-level waste disposal site if you will as the new site, it's extremely difficult, and that has been proven.

And, frankly, you know, we're a public company with shareholders and, you know, it wasn't a happy day when we had to explain that we had bet on the Policy Act and we were now writing down $22 million of the shareholders' assets, because we had tried and done our best and gotten a license, but politics intervened and we're sorry.

So, you know, sort of, you know, it's -- were I to propose this again, they'd probably be looking for somebody else to sit in my chair.

(Laughter.)

And, you know, others have invested heavily, and the utilities invested heavily, whereas in California it was largely an investment by our shareholders if you will. In other regions of the country there were collections from generators, and, again, sort of once burned twice shy.

And I think many in the utility community and others that put forward -- and, you know, Mark could comment on this -- who put a lot of money into

siting efforts, with the exception of the recovery that was obtained on the Nebraska effort, frankly, again, because of in that particular case an intrusion of politics that wasn't careful in its application. And some people wound up getting taken care of by the courts for that.

Elsewhere it was just money spent and gone. So as you look back to the options, what do we have in the country right now? We have a low-level waste -- we have three -- we have two full service --

CHAIRMAN RYAN: Steve, I want to ask you to maybe sum up, because I want to make sure all of our members get their questions.

MR. ROMANO: Okay.

CHAIRMAN RYAN: Go ahead and finish up.

MR. ROMANO: Two full service low-level waste sites, in Richland and Barnwell, both are faced -- you know, both either have or will soon have significant restrictions. Eighteen RCRA hazardous waste sites around the nation that exist. While they're not all suitable for low activity waste, they're out there, they exist. There's a substantial regulatory regime in place for them, and the reality is that's an option that makes more sense than Greenfield site development, if competition is

important.

CHAIRMAN RYAN: Thank you.

MR. ROMANO: Sure.

CHAIRMAN RYAN: Allen.

VICE CHAIRMAN CROFF: In the last day and a half, I think I've heard from -- a consistent theme from innumerable speakers along the lines of Part 61 is workable, let's -- you know, don't do any violence to it, we need to keep on using it, but it would be a good idea to have some kind of an alternative. There are things that need to be done, and 61.58 seems to provide a vehicle to do that.

I haven't heard quite as much on the details of what that alternative might look like. Is it performance-based or not? Should it strive to allow credit to be taken for engineered barriers where there are not upgraded health physics? You can go in any number of directions.

I'd be interested in the views around the table on what should -- what should be an alternative? What's desirable to be in an alternative? And maybe, what shouldn't be in an alternative, what should be avoided? Anybody got any thoughts there?

MR. PORTER: I'll address it, since I talked about it some in my presentation, and since we

have reviewed some requests for greater than Class C waste and have provided some approvals. And some of the things that we have looked at are performance assessment. I think that needs to be a part of it. That needs to be a part of really anything that is going into a low-level waste site is to look at how that particular waste impacts the performance of the site.

I think it needs to consider the -- what the dose alternatives are to addressing that particular waste in a different manner. One of the waste streams that we looked at was some discrete material, small metal fragments that were in a reactor vessel. To go in and remove those fragments from that reactor vessel would have resulted in a fairly substantial amount of exposure to workers that would have had to do that with probably no environmental gain, no gain in site performance for that particular waste.

So I think there are probably some particular things it needs to address performance. But it's going to be hard to address everything, because that -- looking at alternative waste streams really runs the whole gamut of different things.

The same kind of situation that we run

into with license conditions. It's -- we've made an attempt over the years to write license conditions that address the majority of waste streams, but it's probably impossible to write a guidance document, to write license conditions, that are going to address every situation.

CHAIRMAN RYAN: Just an additional thought there, Henry. We've heard that theme I think from a number of speakers yesterday and today. And I just thought for everybody to think about -- it seems that while you can address waste streams or waste types or particular sources of waste, we even have temporally defined waste -- pre- and post-'78 UMPTR waste for example -- so it's time that's the only differentiator there.

But in all of those cases you end up with -- you can address the mainstream of the waste, but you still I think have to maintain -- and this is maybe where I wanted to clarify Julie's comment, and that is that the case-by-case process needs to be in place.

Now, I would offer a friendly amendment that it's a case by case with some structure to it as to how you go about it and what you need to submit and what you need to analyze for, and so forth. That's

the -- I mean, case by case without any instruction is not very good, I'd agree with that. But a case by case that gives folks the sense of what they need to do to make the analysis viable for regulatory consideration is the way to go.

Am I summarizing what you're saying well?

MR. PORTER: Yes, that summarizes it.

VICE CHAIRMAN CROFF: If there's no other questions, anybody else want to weigh in on that one? No?

MR. ROMANO: I would just real briefly say that it could be useful to reexamine the assumptions used in assembling the 61.55 tables for A, B, and C classification, because I do believe there is a -- there are certain limits set in consideration that these had to work in humid region sites, and that some of those limits may be grossly overconservative for an arid region site.

CHAIRMAN RYAN: I would also extend your thoughts, Steve, to say that it's also true that, you know, with a -- kind of a risk-informed approach and thinking about probabilistic assessments, the intruder scenario requires a probability of one at 100 years and one day into the hottest waste.

So the probability of hitting the Class C

waste is one; the probability of doing it in 100 years is one. Well, does that make sense in today's environment?

So I would just offer the amendment that what I think we're thinking about is that's -- those scenarios fix the concentrations that are in regulations. So it's the whole set of assumptions and the framework even for, you know, should it be probabilistic, and other aspects that might be fruitful to look at.

Would you accept that friendly amendment to your proposal?

MR. ROMANO: I would. And there -- in the broader sense, there are a number of scenarios that just don't make sense at certain sites that are --

CHAIRMAN RYAN: Right, right.

MR. ROMANO: -- built in. But beyond the intruder scenarios, some of the resident farmer scenarios aren't --

CHAIRMAN RYAN: Sure.

MR. ROMANO: -- aren't applicable to certain sites.

CHAIRMAN RYAN: Fair enough. Ruth?

MEMBER WEINER: In the interest of time --

CHAIRMAN RYAN: I'm sorry. We had another

response.

MEMBER WEINER: Oh.

CHAIRMAN RYAN: I'm sorry. Let's --

MS. CLEMENTS: I was just going to add to that.

CHAIRMAN RYAN: Please jump in. Please go ahead.

MS. CLEMENTS: If you're going to revisit 61.55, we have A, B, C, and greater than C, how about a less than A? Can we add a less than A? In other words, you know, I alluded to this in my talk -- an exempt class.

CHAIRMAN RYAN: And I think we heard from Jim Lieberman on a similar concept, so we sure heard that.

MS. CLEMENTS: And just to emphasize, Henry brought up -- I believe it was Henry -- BRC and the stigma that's associated with that term and that concept. This would be exempt just for purposes of disposal, and I think that's an important distinction.

The release for any future use, you know, is less acceptable to a lot of stakeholders. But perhaps released for purposes of disposal, without regard to radioactivity, might be more palatable.

CHAIRMAN RYAN: Right. Thank you.

Todd?

MR. LOVINGER: I would just add that I know this is a technical body, but in looking at this issue, which I think is a very valid issue, you have to look at not just the scientific component but the mechanism that you're looking at and what's acceptable and what can be accomplished.

And this goes back to the lessons learned, and I think that that's a very important component that has to be looked at -- what can and can't be accomplished, what has and hasn't been accomplished, so that we don't go down a road of something that just won't work, even though it may be scientifically feasible.

CHAIRMAN RYAN: That's a good caution, and I appreciate your reminding us of that. That's good to think about. The lessons learned aspect I think and what has worked versus what hasn't I think, and minding our experience a little bit more carefully, is a really good suggestion.

Okay. Ruth?

MEMBER WEINER: I'm happy to say that both Julie and Todd weighed in on the question that I wanted to ask, and I'd like to ask the rest of the panel if you have any opinions on setting a

classification that Julie has very well characterized for waste as less than Class A. Do the rest of you have any -- can the rest of you weigh in on that, or is that just --

MR. PORTER: Yes, I guess I'll weigh in on it some, and just -- in my involvement with other regulatory schemes, particularly the hazardous waste scheme that EPA has, there are concentrations of non-radioactive material that are hazardous constituents that have been deemed to be suitable to go in lower regulated facilities.

So I think there is precedence there. I don't want to encourage the NRC to follow everything that EPA does, but I don't think this is going down a path that hasn't been gone down before that there isn't some experience with.

MEMBER WEINER: My other question is to Dr. Ring. And having been from a university, I understand what you're saying about space for decay. But both tritium and cobalt-60 could decay from Class B and C to A. I mean, this can happen in real time. It's not out of the question.

Could you give us some insight on that? Have you thought of that?

DR. RING: Generally, the insight is if

you have something that has been declared radioactive waste because of the financial restraints is to get rid of it. And, yes, things can decay, but the long-term liability of having the materials around and the financial liability in extremely risk-adverse institutions is something that really is the overarching issue.

Get rid of it once it's declared as waste. Once you can prove it's no longer needed, get it out of here; pay for it.

MEMBER WEINER: Finally, I'd like to say that in the waste world, in the regulatory world, it seems to me that 2008 is tomorrow. It is not two years or some number of years away. And I want to finish by commending Julie on her -- on pointing out that these standards, these regulations, should be based on risk to health as nearly as we can assess it, and that I hope is an overriding feature of whatever is done with low-level waste. Thank you for that.

CHAIRMAN RYAN: Dr. Clarke.

MEMBER CLARKE: Thank you. I think this has been just a terrific series of presentations, and I want to pick up on something Henry said. I've always thought that when we were looking at a specific decisionmaking process, say for rad waste, we ought to

go back and look at how that decisionmaking process works for chemical waste. And vice versa.

And I found myself doing that and listening to Julie, and then listening to Joe. I have recently joined academia, so I enjoy the opportunity to engage in fantasies as well that are totally unconstrained by politics and regulation. Maybe we can't --

(Laughter.)

Maybe we can't do too much with the regulation, but we can compare these approaches, and that could perhaps lead us to improved guidance. And let me just give you a couple of examples.

The approach that the NRC is taking to decommissioning complex sites is very risk-informed. They have a graded approach, high-risk sites, low-risk sites, and within those approaches they have a graded approach to engineered barriers and a graded approach to institutional controls, and that's very risk-informed.

On the other side, the way the EPA classifies hazardous waste, as you know, interestingly enough, does have a source-based component. You can be a hazardous waste if you're on a list, say your steel bottoms from the manufacturer of whatever. But

that classification, but while it's in play during the facility operation, doesn't come into play during an environmental restoration activity. Then you're looking at decisions that do have more of a risk-informed component.

So, you know, I think this could be a very rich comparison, and I really appreciate both of your comments. So thank you.

CHAIRMAN RYAN: That's an interesting observation, Jim. I think if you go back to the Atomic Energy Act of '46 -- everybody thinks it's 52, but there is one back in '46 -- safety is mentioned four times, three with regard to explosives and one with regard to sanitation at AEC facilities.

So it's very clear that these definitions are based on security and safeguards rather than health and safety, and somehow it got converted of course to a health and safety regulation set up in '52 with the definitions from security and safeguards orientation were maintained. So that's part of the Rosetta Stone that we try and teach students to unravel, you know, as they begin to study. Why is it defined this way?

You know, and I recall Mike Mobley -- many times hearing him say, "Uranium is uranium is

uranium." And in Tennessee we regulate uranium. Don't really care where it came from. So it is health and safety based, so there's a lot of interesting aspects.

You know, just to maybe close with drawing a few themes from this morning, you know, I think we hear common problems whether it's utility or university or FUSRAP sites or others, or quantities that end up being disposed at other types of facilities.

But it's one where, how do you get from some kind of a definition and framework to thinking about the radioactive material content and related risks and the setting in which they are placed, whether it's storage or disposal. So there are some common themes here that we can think about and hopefully draw together.

And to that end, I guess Dave Kocher has been listening very carefully as a consultant to the committee. Dave, I'd offer you the chance to make any observations or comments that you'd like to make at this point. Please do, yes. There's a microphone right there. Suit yourself.

MR. KOCHER: Yes, thank you very much. I've been listening very intently over the last day

and half, and I've had many of the "deja vu all over again" sensations.

I really wanted to make a few remarks in three areas, most of which involve this whole business of inadvertent intrusion, Class A, B, C, probabilities of this, that, and the other, and what kind of flexibility you might have.

61.58 appears to be a fairly open door through which you can do a lot of things. But I do believe there is probably some very clear limits as to what you can do in regard to waste classification. Let me clear up one misconception that I've heard here several times.

It's not true -- it's not true that the Class C limits were based on an assumption that an intrusion occurs at year 100 and one day with a probability of one. That statement is not true.

CHAIRMAN RYAN: What is it?

MR. KOCHER: What is true is that it occurs at 500 years with a probability of 0.1.

CHAIRMAN RYAN: Really? You'll have to show me where that is.

MR. KOCHER: Yes, sir. I will be glad to.

CHAIRMAN RYAN: Oh, good.

MR. KOCHER: How else can you explain the

fact that the Class C limit for plutonium-239 is 10 times the Class A limit, unless you invoke some probability of intrusion being 10 times less?

CHAIRMAN RYAN: Great question. And the other view of that is that there's a packaging credit.

MR. KOCHER: Sure. The whole idea is that Class C is fairly low-volume stuff in this great mass of A and B waste that's in there, so that it's less likely that some would actually get into it. But the distinction between Class A and Class C is one in time. It's 500 years, not 100 years, and that there is some implicit notion that it's less likely to get in there.

That's not to say that you can't get some additional relief through this 61.58, and I will speak to that in just a second.

CHAIRMAN RYAN: Plus, in the case of plutonium it doesn't matter if it's year 100 or year 500.

MR. KOCHER: Exactly.

CHAIRMAN RYAN: It's a probability --

MR. KOCHER: Plutonium will outlast you.

CHAIRMAN RYAN: Sure.

MR. KOCHER: It hangs around. It's got good hang time.

So on the matter of probabilities, how could you go about this? Mike's favorite example is these little needles and things like that that are this big, and yet you're required to call that Class C -- greater than Class C waste, and you can't do anything with it.

On the DOE side of the house, that's where I come from. DOE does the intruder business completely differently, and they do it along the lines that I think I've heard a lot of people in here say that they'd like to do. DOE defined performance objectives, numerical criteria, and the sites are allowed to use site-specific scenarios that are based on the characteristics of their site, the design of the facility, the nature of the waste. They can do all kinds of concentration averaging to do this.

We always felt that the major flaw in the NRC system was not that the classification limits were generic, but the branch technical position on concentration averaging was not really directed at the disposal problem. It was more directed at the waste handling and what you do with it before you get it into the ground.

And if by means of guidance you could define concentration averaging with respect to

intrusion scenarios and not with respect to what a wasteform looks like, or how it's packaged, you could get some serious relief here. That's just my thought.

Probably in this guidance you can do a lot with Class A limits by just redefining scenarios. Class C limits are more of a challenge. Why is that? It's because they are now embodied in the law. The Low-Level Radioactive Waste Policy Amendments Act of 1985 specifically points to Table 1 of 61.55.

So if you want to get around those numbers, you've got to put your lawyers to work. I mean, this is a barrier. But I think you can address it by proper concentration averaging with respect to the scenarios that you're concerned about.

Another misconception about this that came up yesterday in one of the talks was the idea that, well, if I could -- I ought to be able to increase the Class A limits because I can meet my offsite performance objectives with no problem. Please remember that the Class A limits have little or nothing to do with release and offsite dose to the public. It's addressed at the intruder protection, which is an entirely separate issue.

You can get relief, in my view, in the scenarios, but you can't argue that, well, I can put

in a lot more Class A waste because 25 millirem is still okay.

Yes, I think licensees might have a go at petitioning the NRC to use 61.58 on these classification issues and defining intrusion scenarios properly on a site-specific basis and see what happens. Enough of that.

A couple other areas. One was the use of RCRA facilities for Atomic Energy Act materials. This is a great idea. I'm really -- I'm sympathetic to Bill Dornsife and others who say that, yes, the system looks kind of messy, but we can make it work, so we live with it. I tend to be an idealist. Those of you who know me know that that's true.

There is something about the -- putting radioactive material in a RCRA facility, which I have advocated in one case, leads to, I don't know, logical difficulties. We have the red ones over here, the radioactive stuff, they're red. And the hazardous chemicals over here, they're blue.

Well, when we put the red guys in the ground, we have to do a performance assessment. Even at a RCRA facility you have to do a performance assessment to check against the performance objectives, and you have to in some sense ensure

against protection of inadvertent intrusion.

The blue guys, you don't have to do either of those. The technology is assumed to take care of everything. If the technology doesn't work, we're going to scoop it up and process it again. There is no consideration whatsoever at a RCRA site for predicting future inadvertent intruders.

So I suppose we can live with this, but in an ideal world this ranks somewhere between, you know, untidy or unseemly on one extreme and total farce at the other. That bridge will never -- that gap will never be bridged. We'll just have to learn to live with it.

My last comment concerns exemptions for radioactive material. I'm completely in favor of the idea that almost all of these exemptions in Part 30 and Part 40, any materials that satisfy those exemptions ought to be able to go to a RCRA D landfill with no problem. The one that I have a little trouble with is the .05 percent source material.

Ten years ago or so I worked on a project where we did a detailed sort of health and safety assessment, all of the existing exemptions. And it was clear that nearly all of the existing exemptions did have some kind of health and safety basis. The

AEC or the NRC had done some evaluation of the possible health consequences of exempting these materials.

The one clear exception, of course, was the .05 percent. That is strictly based on economic considerations of the ability to get source material out of the ground and make a bomb. There was nothing to do with health and safety.

I don't think it's a real problem, but if you have large volumes of .05 percent thorium you've got a problem. That's 50 picocuries per gram. That's 50 times background. You have fairly high gamma doses, and radon-220 is not innocuous totally. So be a little bit careful about that one. But otherwise, the idea that timepieces, smoke detectors, can go in a landfill, no problem with me.

CHAIRMAN RYAN: Dave, I think the important point you make that comes through there is that it should be a radionuclide-focused health and safety-based kind of risk, and that's -- the .05 by weight is one where you didn't find that.

MR. KOCHER: Well, that exemption had no basis --

CHAIRMAN RYAN: No, and I understand it was a chemical processing basis.

MR. KOCHER: Yes.

CHAIRMAN RYAN: And it's uneconomical to get more than that out of the ore, but so --

MR. KOCHER: So you do need to look at the health and safety consequences of managing --

CHAIRMAN RYAN: Fair enough. I just wanted to --

MR. KOCHER: -- so-called exempt materials that contain large volumes of thorium and uranium.

CHAIRMAN RYAN: Well, and just to add to your thought, I mean, again, I bring to the point that concentration is not necessarily the appropriate metric for risk. Sometimes it's quantity. Most often it's quantity and concentration considered in some joint way. You make, you know, the point about my little needles with strontium-90 eye applicators, or whatever. Yes, they're highly concentrated, but they're trivial in amount.

MR. KOCHER: Yes, I would average that over the width of a drill hole.

CHAIRMAN RYAN: And, in fact, for some disposals of that type that -- you know, those kind of considerations go into packaging and all those kinds of things. But the -- I think the root point is concentration and quantity are what you need to think

about, not one or the other, and not one to the exclusion of the other.

Let me finish. The concentration tables only talk about concentration. So what we wrestle with is how we interpret the concentration tables when we have quantity questions that are significant and important to the risk questions.

So that to me is kind of one of the points of struggle is -- we're only given the concentration side, without any thinking or path forward on quantity and concentration, and that's where we have the biggest struggles. Very dilute stuff, and very concentrated stuff. Somewhere in the middle we tend to be okay.

You know, if you're at the top of Class A to the bottom of Class C, everybody seems to work just fine. But when you get to the extremes, the very low and the very concentrated, that's when we struggle with, how do we deal with risk, considering both? Is that a fair view?

MR. KOCHER: That's a fair statement. And my concern about the .05 percent really applies in the I guess unlikely circumstances that you would ever end up with large volumes of this kind of stuff. A barrel full of .05 percent thorium, I don't worry about that,

but --

CHAIRMAN RYAN: Yes.

MR. KOCHER: -- thousands of cubic meters, if that should ever happen, you know, that's a different -- that's a different --

CHAIRMAN RYAN: Well, again, we're on the concentration and quantity view of the world as being something to consider.

MR. KOCHER: But I do think that it would be nice to try the guidance route to implement 61 -- my bottom-line message here is it would be nice to try the guidance route under 61.58 to see if you can handle some of these site-specific issues where the intrusion -- where the basic intrusion scenarios that were used to develop the Class A, B, and C limits don't really work. The West Texas facility is a clear example. A resident farmer there just isn't going to happen.

CHAIRMAN RYAN: Thanks. We appreciate your insights, and thanks for summing up for the last day and a half or so.

We are a little bit over time. I'm going to suggest that we take our lunch break and reconvene --

MS. D'ARRIGO: Mike, could I have an

opportunity?

CHAIRMAN RYAN: Actually, we have -- we're going to have some time later on, so if it's a quick question --

MS. D'ARRIGO: Will a utility person be here later?

CHAIRMAN RYAN: I think everybody will be here this afternoon. But if you have a quick question, that's fine.

MS. D'ARRIGO: I wanted to know -- I have two questions. One is, what is the current plan for new reactors to manage low-level radioactive waste? What's part of the plan for that?

MR. CARVER: Well, I think we're sitting on an issue that many of us are going to be struggling with. Sitting back and looking at what's going on, we've actually taken down and worked with the people who are designing the reactors to look at what the potential options are, and in that we're looking at the generation points and the management points.

We also have taken into account that we may have to have storage, but that's not an issue that either Westinghouse, GE, or any of the other designers are struggling with. So basically, with what we're dealing with here, as I mentioned earlier and going

forward, is what we're going to have to live with. And we're working through whatever regulatory guidance and whatever design basis we can go with to maintain that and deal with the overall issue of radioactive waste.

MS. D'ARRIGO: So you don't have to put into your application your plans for how it's going to be dealt with?

CHAIRMAN RYAN: That's actually beyond the scope of -- new reactor activity is beyond the scope of what we're trying to cover today.

MS. D'ARRIGO: Is it?

CHAIRMAN RYAN: Yes, I think it is for the moment. I mean, he's got an answer for --

MR. CARVER: I mean, in actuality, the -- each one of the reactors, once they go beyond the design and they go to the NRC, there are going to be numbers within the application to the NRC as far as what they anticipate as far as generation. But as far as what they're going to do with the radioactive waste, that's not within the scope of what the application and early site permitting have had us to deal with.

MS. D'ARRIGO: Okay. My other question was: who is going to move to a risk-based or a risk-

informed classification system? Would these risk decisions be made by the Nuclear Regulatory Commission, or would they be made on a site-specific basis? And at what opportunity would the public be able to participate in the risk decisionmaking?

CHAIRMAN RYAN: All good questions. You know, and I guess I wouldn't pick one over the other at this point, because we're really exploring all of that -- to think about what those options should be and what -- you know, clearly, the NRC has guidance on risk-informed regulation. They've been working with that concept now for some years, so I think what we're exploring is how all of that would fit together in this arena. So the answer is: I don't know.

MS. D'ARRIGO: Well, because from the perspective of a public interest organization, and people who work with those who will be exposed to whatever minimal risks these are or whatever level of risks these are --

CHAIRMAN RYAN: Right.

MS. D'ARRIGO: -- we would like to fulfill our responsibilities to participate in the process. But, you know, we're not really actively being sought after for, you know, input on this. And there are differing opinions on what the risks are, and there

are differing facts that are not always presented, and, you know, we've had comments that we've put in on what the risks of low doses of radiation are, which appear to be often not incorporated into the decision.

So if we're going to talk about risk-based regulations -- I mean, risk-based standards, there has to be a greater opportunity for those who are going to be exposed to that risk to be a part of that evaluation. I mean, in several situations the -- okay. I'm glad this is entertaining.

CHAIRMAN RYAN: Are you done? I mean, are you --

MS. D'ARRIGO: Well, I could go on, but I won't. I know everyone wants to go to lunch, and, of course, you know, I don't want to hold that up. I'm trying to get an answer of what I do to alert people that this is coming down the pike, and that I, you know, invest my resources and hire people or train myself to participate in these decisionmakings. And I'm asking at what juncture there is an opportunity for input or if there's not.

CHAIRMAN RYAN: Well, there's certainly one now, and for the rest of this meeting, because we have a lot of time for input on those issues. So we certainly are interested in all input as we prepare

our letters. And, of course, we operate in the public; our letters are provided to the Commission as a public document.

So anything we say to the Commission on this information-gathering certainly is public. And, of course, that's a far cry away from the Commission doing anything with our letters of advice at this point. So we're very early in the process, so we appreciate you being here and appreciate others who want to offer their views during these meetings. And we'll certainly have your information and views as part of the record.

MS. D'ARRIGO: So then, my final comment would be that a problem that I see here is that from the perspective of those who -- some of us who would be exposed, that we would like to see the regulators working toward prevention of exposure, rather than legalizing it and finding various different technical mechanisms to allow for increasing exposures, even though they may be deemed by the experts that generate the waste that they're minimal.

We're talking about -- the input I'm trying to give here is that there is a significant portion of the public that doesn't want any additional exposure. People here who make the decisions may

think that that is unreasonable or that that's not scientifically based, but I contend that it is and that people have a right to have that protection, and that the Nuclear Regulatory Commission is the agency that is supposed to provide public protection.

And that's what we -- we'd like to provide input into the decisionmaking that reflects this perspective.

CHAIRMAN RYAN: Okay, great. Thank you very much for your comment.

With that, we will adjourn until 12:30. Thank you very much.

(Whereupon, at 11:23 a.m., the proceedings in the foregoing matter recessed for lunch.)

CHAIRMAN RYAN: Let's go ahead and come to order and have folks take their seats, please.

This afternoon's panel includes the following individuals. Unfortunately, as I mentioned this morning, Mike Elson could not be with us. He had some pressing work that came his way. Joining us are Scott Flanders on my left. Next to Scott is Dr. Judith Johnsrud, Dr. Alan Pasternak, Mr. William House and hopefully soon, Susan Jablonski. She's on her way, okay, great. So she'll be here in just a second.

I want again express my thanks to all the presenters and to the panel discussion this morning. I think it was a very good exchange on lots of points of view and lots of information from many different folks and we appreciate every single one of them. So it's great information and great to have everybody's participation.

I think we'll follow the same format of having individual presenters this afternoon give their views in perhaps 15 minutes or so and then after we have that first round of comments by individuals, we'll have exchange among the panel members and reactions to what they've heard. And then from there, we'll ask the Committee Members and consultants to provide any questions or additional dialogue that they might offer in response to what they've heard this afternoon.

Again, our schedule for this afternoon is this should take us from about now 12:30 to 3 o'clock or so and then from 3 to 4:30, an hour and a half, we have an open session for any other additional comments or views to be added or other discussion among panel members or others in the audience that may wish to speak and offer their comments and views.

And with that, we'll close with a

discussion among the Members of what trends and themes and items we might summarize, things we've heard and we'll then consider all of that as we draft our letter which we'll read out and evaluate at our new ACNW meeting, not the June meeting, but perhaps the meeting after that in early July. So that's about the time frame for when the letter will be prepared and read out and edited and changed as our process dictates, so we can task whatever advice we might develop from this meeting to the Commission.

So without further ado, thank you, Susan, for being here.

Let me start with Scott Flanders on my far left, please.

DR. FLANDERS: Thank you, Dr. Ryan. Today, I just wanted to spend a few minutes providing a little bit more context about our low-level waste strategic assessment.

CHAIRMAN RYAN: Just for the record, so everybody is clear, that hasn't seen your name tag, Scott, you are from?

DR. FLANDERS: NRC, NMSS, Division of Waste Management and Environmental Protection.

CHAIRMAN RYAN: Thank you.

DR. FLANDERS: I just want to spend a few

minutes giving a brief over of our low-level waste strategic assessment. Larry gave a good overview yesterday. I just want to provide a little bit more detail, a little more context on what we're trying to do. But before I get started, I do want to take the opportunity to thank ACNW for putting on this meeting. I think it's been a good two days. We've gotten a lot of very useful information for our efforts and I think it's going to benefit us greatly.

And I do want to point out specifically and I'd be remiss if I didn't point out the efforts of Dr. Lee in helping to coordinate this session and working very closely with the staff to get this all set up. So we really appreciate the efforts of the Committee as well as the ACNW staff.

Let me start off briefly by trying to put some context around our strategic assessment. Yesterday, you heard two very good presentations about strategic assessment efforts that have been done in the past by the NRC by Paul Lohaus and Dr. Mal Knapp. And this effort is really driven by a very practical issue that we are facing with our staff. And Larry touched on it yesterday in terms of the resources that we have available to do the work as we see more and more pressures from both internal and external desires

to have different activities worked on and evaluated as it relates to low-level waste. And it really became a matter of how do we work on the right issues and the right time frame? How do we focus our efforts? Because we want to work with a sense of purpose and we want to work to move and advance and achieve outcomes.

So one of the things that we started off with is to ensure that we didn't necessarily work in a vacuum. We wanted to gather stakeholder input and the timing of our efforts starting in the timing of the ACNW's activities worked out very nicely where we could really benefit from this meeting because we think that we have a good group of players here that can really provide some very good and useful information.

In formulating the strategic assessment, one of the things that we wanted to make sure that we thought about was not just to have tunnel vision or just look at the next day in front of us, but we wanted to look at and factor in future needs, how is the industry, how is external, internal -- the environment changing? How can it influence what issues that we need to work on as we move forward to ensure that we're not always operating in the mode of

being reactive. We wanted to try to get out in front of some issues to ensure that we provide a good regulatory framework.

We wanted to -- and again, this gets back to being practical. We wanted to identify potential industry actions, specific actions and activities we could take that would move towards improving the stability, reliability of the regulatory framework and we've heard some good ideas today about some of those things that we could potentially do.

We certainly want to prioritize our efforts. As I said earlier, we want to work with a sense of purpose. So we want to prioritize our efforts and work on those things that are most important.

We had some good suggestions earlier today that really, in addition to providing the suggestion on what we could do, there's also a reason why it was felt that it was an important activity. For example, Henry Porter pointed out a few activities that we could work on. But in addition to identifying just the activity, he really pointed out why he thought it was of utility to work on those things and why it had some importance.

Next slide. Just in working with the

sense of purpose and prioritizing, we want to work on activities that give us the greatest return on investment. And what we mean by return on investment are those things that help us achieve these set of objectives that you see here. We want to position ourselves to meet current and future challenges as it relates to low-level waste and ensure that our regulatory framework is adaptable, stable to be able to address not only today's issues, but potential issues that may come up tomorrow as the environment changes.

We wanted to make sure and assess are there any gaps that we really need to address or close? Are there any vulnerabilities? Are there any unintended consequences by us taking a particular action or not taking a particular action? We wanted to be mindful of that. We wanted to get input on that. And we certainly wanted to make sure that if there's opportunities to improve the efficiency and effectiveness while maintaining our primary goal which is safety, the protection of public health and safety, we wanted to look to see if there's ways to improve the efficiency and effectiveness without compromising in any way protection of health and safety.

And then again, because we have limited

resources, we wanted to identify those things that we thought we could do that will give us the greatest return of investment with the resources that we have available to us. There might be some things that could really give you a great benefit, but given the limited resources we have, we need to be mindful as to whether we can realistically take some of those issues on or the time in which it would take us to actually address those issues.

So these are some of the objective that we wanted to achieve as a part of our strategic assessment. So when we talk about return on investment, this is partly what we're trying to go towards, with the primary goal of that vision, we want a reliable, stable and adaptable regulatory framework.

Certainly, in all this effort, as I mentioned earlier, is the importance of stakeholder input. We really wanted to gather stakeholder input. We didn't want to work in a vacuum. When we met with Dr. Ryan and Dr. Lee concerning this workshop, we really looked at this as an opportunity to collect a great deal of stakeholder input as we feel as though it's valuable to hear the views of the stakeholders because they have a different perspective in terms of what's important. They're working with these issues

day to day and in some cases much more closely than we are. So we feel it's important to get that input. We're certainly going to review the transcript from today's meeting and consider all the information that's provided.

We also intend to issue a Federal Register notice in mid-June, soliciting additional stakeholder input. And it's likely it will take the form of the questions we sent out earlier as a part of -- as ACNW sent out earlier as part of the prospectus, but also based on some of the discussions and things that we heard in this meeting, are there some thoughts or things that we can expand upon? And we want to go ahead and send that out in mid-June, so I hope that everybody keeps, takes a look at the Federal Register and gets an opportunity to provide input to us. We're going to put it out for a 30-day period, to allow people to have sufficient time to think about and digest some of the issues.

Another reason why we thought it was important is there may be some issues that are discussed today, over this two-day period that prompt people to think of different issues and activities that they may suggest us taking on. So we wanted to give that opportunity.

And then one of the things I wanted to leave you with last to help, hopefully, this will help focus some of the discussion this afternoon, is to identify maybe what three issues you think are most important for the NRC staff to work on and why. When we talk about issues to work on, we're really looking at this from a practical standpoint in terms of issues that are within our regulatory responsibilities, issues that we can get to and actually make, take practical actions toward.

Some of the discussion talked about issues that are maybe outside of our scope, of our regulatory responsibility, but certainly there are many things that were within our scope of responsibilities and we really want to focus on those things that we think may be most important for us to take on as we look, not only on today's issues, but as we want to position ourselves for any potential changes in the future.

That concludes my remarks.

CHAIRMAN RYAN: Thank you, Scott. That gives us a good focus on your views and NMSS's information-gathering activities. Again, I appreciate the comment that the Federal Register notice in mid-June will solicit additional stakeholder input. I think that helps answer at least, in part, the earlier

question that we had just before the lunch break.

Okay, with that, I would turn next to Dr. Judith Johnsrud, coming this way.

Good afternoon.

DR. JOHNSRUD: Good afternoon, and thank you very much, Dr. Ryan, for the invitation to participation. I am, in a sense, representing the National Sierra Club, but I do want to state that I am speaking essentially for myself, also, on the behalf of a great many in the organization. My background is in the field of the geography of nuclear energy, and I think I'm in the 39th year of working on these issues. In that time, I guess I need to add a great additional waste has been generated.

I have things to say that may make some in the room less than happy. I hope that they will be understood as they are intended, namely to represent the concerns of many in the public realm who have no direct involvement with the industry or with the regulatory process. But working in this realm as I have for a long time, I have found myself quite troubled that there are major aspects relating to not only nuclear reduction issues, but most particularly waste issues given the duration of the hazards associated with radioactive materials and waste that

appear to many of us in the public realm to have received relatively short shrift.

Perhaps I should add, however, that from the time of the passage of the Low-Level Waste Policy Act, our involvement in my state, which is Pennsylvania, has been, I think, moving in a remarkably strong direction to arrange for the control, the management, and disposal of radioactive waste generated within the Compact to which we belong, the Appalachian State Forest State Compact. And of course, we are the major generators.

And so in certain respects, especially as I learn that there are those within our state who may believe that the policies and the law have failed to create a site for our Compact, or in other ways have failed, I am concerned that we may find ourselves with efforts to alter the existing legislation within the state and at the federal level. Both of which I feel have under certain circumstances at least served us reasonably well.

This is not to say that we are or I am pleased with all aspects of waste management. It is not quite clear to me whether you anticipated that this panel would be addressing the several questions that you had sent to us. Are there actions of

industry or regulation that should be taken up with respect to the long list --

CHAIRMAN RYAN: Just to clarify, I think our questions were just meant as food for thought. We're happy to hear your views of any aspect of the subject that you'd care to share.

DR. JOHNSRUD: Yes. A fundamental point that I want to raise has to do with the necessity for protection of public health and safety both in the immediate time period and in the substantially more distant times ahead, that those be given absolute priority as the mission, if you will, of members of this Committee and certainly of both the NRC, EPA, the Department of Energy, the Department of Defense, and all others who have responsibilities for radioactive materials.

So without going then into too much detail, but I guess if that's since a response to question number 3, the issue of key safety and the cost drivers, and that brings me to suggest that we must not allow the costs to either the generators or the waste management companies to be given priority over the fundamental cost which is that to members of our society who are exposed to radioactive materials and waste.

So good. I don't have to go through those. We have felt for a very long time that there were some serious shortcomings of radiation exposure limits. The regulations were promulgated both by the NRC and EPA. EPA for the general public, and of course, the working populations exposures in the work place. I've suggested to some in the agency that I believe it is long overdue to retire Standard Man. Standard Man is an important concept for all workers. So is Standard Woman, only partially protected during pregnancy.

But from the perspective of the general public, of those who will be living with radioactive waste disposal sites in their own neighborhoods, as well as other sources of radioactive exposures that come about in consequence of policy decisions on the part of the agency and this Committee, I think we need, finally, to alter our fundamental radiation protection standards in a number of ways.

Primarily, they do not address, but very much need to address, those who are at greatest risk. And who are those? I think we do all know they are indeed pregnant women. They are people with impaired health for other reasons. They are people who are aged and very young, fetus, embryo, and we seldom even

mention the ova.

So all of those are the ones who should receive the maximum protection from the standards and permissible releases of radioactive waste. In addition, I've been troubled, we are troubled, by the fact that for the most part our standards address the lifetime risk of fatal cancer. They address gross genetic consequences. But we have indeed learned a great deal more about the impacts of radiation exposures and of low-level radiation exposures.

So we would strongly urge that this Committee have as strong a role as it can exercise to extend to other illnesses, other consequences of exposures to ionizing radiation, even at low dose levels.

I've been much interested, well perhaps I should say first, you know, we've really depended a great deal on epidemiology and epidemiology has shown us in many communities positive correlation between the presence of a nuclear facility of some kind on the one hand and clusters of otherwise unexplained illnesses, cancers, leukemias, other illnesses in populations resident in the area.

And with due regard to epidemiologists who do, I think, the very important work of notification

for us, they can't really explain the causation. They can't put the finger on why these clusters are occurring, whatever the cluster may be. It may be in the realm of lesser diseases, but nonetheless those that are significant for the people who have them.

And so what we have seen in the recent years, I would guess I'd say in the last decade and a half perhaps, two decades, I have seen a rising interest in the realm of the research of microbiologists who have been looking closer to causative factors, to why there is a damage to a particular cell or a group of cells and what those damages may be as they, in turn, will impact the health of surrounded people.

And what have they found? Well, they are coming close to the mechanisms of damage, I believe. This is not my realm of personal research, but it is a realm that's significant for the public. And genomic instability, immune system deficiencies, imperfect cell repair. These are all, I'm sure, by-standard effect. These are matters that I assume all of you are well learned in. And I would hope that they will be made evident in your recommendations to the Commission with regard to low-level radioactive

waste.

CHAIRMAN RYAN: If I may, just to let the audience know, we are, in fact, planning for later in the fall, we don't have an exact month for it yet, but we're planning an information gathering working group much like this on those very issues of fundamental radiation biology in these emerging areas. So --

DR. JOHNSRUD: I'm delighted to hear this.

CHAIRMAN RYAN: Keep your eyes on the agenda, on the ACNW website. We'll keep you up-to-date on that. But we're hoping to get some of the folks who are doing some of the cutting work you mentioned to come and tell us about it.

DR. JOHNSRUD: Very good. I'm delighted to hear that and I hope that you can invite the whole Commission, the Commissioners, as well as the whole staff.

CHAIRMAN RYAN: They're always invited to our meetings, it goes without saying.

DR. JOHNSRUD: So without going too much farther into this, it really does speak to what you are dealing with which are the finding on the part of waste management people that they have a serious difficulty. It is expensive, very expensive to isolate radioactive waste for the full period of the

toxic life of the waste. And therefore, within our culture, the pressure, both from the waste management companies and certainly from the generators who have to bear costs, it's a very difficult problem, which has been met in the past and I would remind everyone of below-regulatory concern, met by essentially loosening the requirements for control.

Class B, yes indeed, is dangerous. Class A is supposed to be the low-level waste. And yet, we find increasingly that there are exemptions. There are relaxations such that not all of the radioactive material waste that are generated may be brought under full control. Now, in my State of Pennsylvania, as a member of the Low-Level Waste Advisory Committee from its inception, I can guarantee that we worked awfully hard to develop a good proposal for a Compact site that would be as protective of public health and safety as good conceivably be achieved.

However, we find increasingly that radioactive materials are being allowed to be disposed of in facilities that are not designed to maximize the control. And this we do have deep concern about and we strongly urge that the ACNW do all it can to minimize relaxation of the definition of what is considered to be low-level radioactive waste that

requires the best possible sequestration from the environment.

And this is, in large measure, because unfortunately waste that are allowed into landfills or otherwise semi-abandoned, have a nasty way of showing up and again within our State of Pennsylvania we are now facing the occurrence of tritium in substantial amounts, far in excess of EPA's drinking water standards at more than 50 percent of our landfills. This is, as we've heard today, a problem, a serious problem. Tritium is not easy to manage, control.

Moreover, the more waste that is released that enters the biosystem, more individuals will receive small doses, perhaps almost infinitely small, that may indeed be then cumulative from numerous sources, none of which the individual can identify.

I've had for a long time a great concern about these multiple, additive, cumulative and synergistic doses, the synergies being with the entire realm of hazardous materials, toxics that are released also into the environment. And we really know very little about how they may interact both with other toxics with radiation, sources and within the individual recipient.

The recipient should, indeed, manage to be

able to determine whether he or she wishes to take additional doses. And when the wastes have been released, downgraded in terms of the disposal siting and control, the greater will be the doses to which an individual is unable to offer identity, even if he carries a monitor. We don't all want to have to carry monitors with us and they wouldn't show us much anyway.

So I don't want to continue over my time. I do urge, however -- I'd like to see the NRC return to former philosophy of regulation, redundancy of safeguards with respect to waste, as well as production. Redundancy of safeguards in combination with defense-in-depth, which in the context of low-level waste will mean maximizing the control of those wastes, not releasing them, not developing new terminology.

The public and the waste themselves, I think deserve more than performance-based and risk-informed approaches to the regulation.

And with that, I thank you.

CHAIRMAN RYAN: Thank you very much. We'll turn next to Alan Pasternak.

Dr. Pasternak, welcome. And again, I apologize, we're running real short of time and I knew

you were going to be in that chair here shortly, so if you want to make any comments from that point, have at it.

DR. PASTERNAK: Oh, I see. Talking about earlier today?

CHAIRMAN RYAN: Yes. I apologize.

DR. PASTERNAK: Sure. Can you hear me?

CHAIRMAN RYAN: I can hear you fine. The important person is the recorder. I think she can hear you and hopefully the audience can hear you as well.

DR. PASTERNAK: I apologize for this.

(Cell phone ringing.)

Give your dollar to Mike Lee. At least he's not going to confiscate it, I hope. I apologize.

Thank you, Chairman Ryan, and the Members of the Committee for inviting me here to talk about the Nuclear Regulatory Commission's strategic plan. While I usually have a lot to say, I did not prepare a formal PowerPoint presentation and one reason is that I hoped to be able to listen and reflect on the comments of others of both today and yesterday, as well as Monday when across the street there was a meeting sponsored by the Southeast Compact Commission on the use of federal facilities for disposal of non-

DOE waste.

And indeed, the mean recommendation I'd like to make to you today was not one that I had really given much thought before I came to Washington, so I think it's probably just as well that I did not prepare a formal presentation.

It's going to take me a little while to get there. And I'd like to comment, as you suggested, on some other things that have happened.

Yesterday, Chairman Ryan asked Don Womeldorf, the Executive Director of the Southwestern Commission, is there a path forward at the present time for California? This was in the context of the Ward Valley proposed Ward Valley project and my short answer is no.

Not only did Assembly Bill 2214 of 2002 say that will not build a regional disposal facility at Ward Valley, it also put in place laws, provisions of that law required engineered barriers and explicitly no shallow land burial.

I think it reflects a lack of political will on the part of the legislature to move forward on the state's responsibilities under the act and under the Compact.

I don't know if you can build a facility

that is not near-surface disposals since the NRC regulations are built around near-surface disposal and somebody might question in a Court what does that mean, no shallow land burial and you get arguments back and forth, have we complied or haven't we complied and it would just be a mess.

Furthermore, last August, a nominee for a seat on the Southwestern Compact Commission was denied a recommendation for confirmation by the Senate Rules Committee in Sacramento because it was found that he had sent an email to his colleagues on the Commission suggesting that, among other things, that they might recommend to the Governor would be a repeal of Assembly Bill 2214, thus allowing the process to move forward.

That was considered, I guess beyond the pale and he was not confirmed for a seat on the Southwest Commission. So there are those indications that there is not a path forward in California.

You've asked the question what are the lessons learned and if we had time I might -- by the Ward Valley experience -- if we have time, I might to into that a little bit.

CHAIRMAN RYAN: You might, just as a planning item save that until the end until we get

through with this panel, if that's okay.

DR. PASTERNAK: With respect to the development of new low-level radioactive waste disposal facilities and assuring, providing assured access to all users of radioactive materials that their low-level radioactive waste can be safely disposed of, Cal Rad supports amendment of the Low-Level Waste Policy Act by Congress to provide a role for the Federal Government.

These proposals have the support of the Health Physics Society, the American Nuclear Society and the Council on Radionuclides and Radiopharmaceuticals, among others. And there is an American Nuclear Society Position Statement No. 11 that you may want to refer to. The Health Physics Society has written extensively, has extensive documentation on this issue.

Specifically, we have two proposals. One in the near term and one in the long term. For the long term, we recommend that Congress authorize the Department of Energy or any other federal agency, appropriate agency that it sees fit, perhaps the Corps of Engineers, to develop a disposal facility on federal land to be regulated by the U.S. Nuclear Regulatory Commission and to be considered a national

facility, that is, a facility for waste from those states, it would be 34 to 36 states, depending on how successful Texas is. But those states were not among the fortunate 14. The states of the Northwest, Rocky Mountain and Atlantic Compacts do have assured access to safe disposal facilities for the indefinite future.

It is argued that the act has failed in its primary purpose which was the generation -- the development of new disposal facilities to more equitably distribute the disposal task than it was at the time in 1979 when there were three facilities. Today, we have only two such facilities plus the Envirocare facility which accepts a subset of Class A waste.

I'd like to bring to your attention, oh, let me go on to the near term proposal and that's the one where I think NRC might be of immediate help. The near term proposal is that non-DOE waste, sometimes referred to and has been referred to repeatedly over the last two days as commercial waste, but I refer to them as non-DOE waste because it includes not only waste from industries and utilities and medical centers and universities, but we're talking about waste as you heard earlier this morning from the Army Corps of Engineers. Monday's session was attended by

other military people from both the Army and the Navy; in California, NASA; the Veterans Administration, Air Force Bases are in the practice of sending low-level radioactive waste to Barnwell for disposal. They will no longer be able to do that after July 1, 2008.

So that is our near term solution to these problems is access to DOE facilities, disposal facilities, at least on an interim basis.

There is a third proposal which is a variation of these, I think, which has been suggested by the Health Physics Society and which I think is worthy of serious consideration. And that is that while the Department of Energy is considering the disposal of greater than Class C waste, they issued an advanced notice of intention to prepare an EIS and the Health Physics Society is suggesting that that EIS consider the disposal of Class B and Class C waste, along with the greater than Class C waste. This seems to make a good deal of sense. Doe is charged with disposal of greater than Class C waste. They're beginning the process of doing the environmental review for that. Such a facility, if it's safe for greater than Class C waste, would certainly be adequate for Class B and C wastes, why not consider that and we think that that's a proposal that also

ought to be considered.

We look at the history of the Act and it's been on the books for 26 years and in that period of time no new facilities which meet the requirements of the act have been developed. We think there is a lack of political will among the states. Only one state, Texas, is currently pursuing development of a new disposal facility. There are 10 intra-state Compacts, but we don't need 10 disposal facilities. But of course, the purpose of the act never was economical. It was a question of equity and it was designed to share the burden. In addition, I think there are about 10 states that are not members of Compacts.

We are not dealing with the same low-level waste policy act today that we were dealing with when it was active and put on the books in 1980. In 1992, the Supreme Court struck down the Take Title provision. The act had a carrot and a stick. The carrot was that a Compact Commission within whose region, a regional disposal facility was built, could limit access to that facility to the party state members of the Compact or anyone else they wished to contract with. And that is the way that the Northwest Compact has operated since 1993. At that time, they contracted with Rocky Mountain States and so access to

Richland has been restricted since 1993.

And similarly, the Atlantic Compact, South Carolina, New Jersey and Connecticut will restrict access to the Barnwell facility in just about two years.

So that's the carrot and that's still there. But the stick was the Take Title provision, that any state which failed to provide its users of radioactive materials with assured access to a disposal facility would be required to take title and possession of the waste.

And when that provision of the act was struck down, I think a lot of the wind went out of the sails. Proponents of the development of new facilities came in and told California and I presume other states, see, you don't have to do anything. And I think if you look at the history of it, you will see that activity by a number of states, including Pennsylvania, may have -- I think it was about that time that a lot of this activity began to taper off.

July 1, 2008, Barnwell closes to 36 states. The waste that those 36 states send to Barnwell -- over the last year, full Fiscal Year, I was able to find the data. The waste that those 36 states send to Barnwell generate -- contains 98

percent of the curies disposed of at the three facilities at Envirocare, Richland and Barnwell. So we're talking about access, loss of access for 98 percent of the curies.

Development of a new disposal facility can take 10 years or more from the time of enactment of enabling legislation in California until issuance of a license was 10 years and to uphold that license against challenges the EIR took another three years of litigation.

Not only will these 34 to 36 states lose access for their disposal of their B and C waste under the current statutory scheme, but the way things have developed, one facility, the Envirocare facility will have a monopoly on disposal of their Class A waste, and under current regulations that does not include biological tissue or sealed sources.

The outlook has worsened in just the past year and a half. A year and a half ago, there was hope and it was reflected by the Nuclear Regulatory Commission in its comments on a General Accounting Office report that I'll get to in a few minutes, that Utah would accept B and C waste. But just about a year ago, the State of Utah put on the law, on the books, a law which bans the acceptance of Class B and

Class C waste. In addition, the Governor of Utah has expressed his opposition to expansion of the Envirocare facility for Class A waste.

There have been some suggestions here in the last day and a half that an application of Part 61.58(a) may in ways that I don't understand because I'm not an expert in this, expand the Class A limits. But I think if you attempted to this, you'd run up against the Utah legislature would say by Class A, we meant what it was when we enacted the law.

There has been and is on-going litigation concerning as a result of attempts to implement the Low-Level Waste Policy Act, for example, Nebraska was willing to settle a lawsuit for $140 million brought by the Central Interstate Compact Commission. They ponied up $140 million or so, rather than develop a new disposal facility. And this was following the findings of two Federal Courts, the District and an Appellate Court, that Nebraska had acted in bad faith in denying a license for a facility.

Finally, in this list, in this dreary list of problems, I'd like to mention a number of -- another issue and it was illustrated for us this morning. It has to do with who opposes this idea of a federal solution? And you've heard this morning

from Todd Lovinger, the Executive Director of the Low-Level Waste Forum who presented their statement of considerations or statement of positions issued last fall.

Susan, who is the Executive Director of the Low-Level Waste Forum or the Chairman of the Low-Level Waste Forum, I trust has seen the document that Cal Rad did which was a critique of that position statement. I've provided it to Todd about three months ago in Tucson and I hope I'm not surprising you with a critique here of that. But we feel that that statement presents a far too optimistic picture of the current status and offers no specific recommendations for moving forward. I'm not going to read you that whole statement, nor am I going to read you our critique of it, but I will provide you with a copy.

CHAIRMAN RYAN: We heard the statement because it was presented to us, but if you're going to provide us with any feedback, it would be helpful if we had it in writing as well.

DR. PASTERNAK: Oh yes. I'll provide that.

CHAIRMAN RYAN: Thank you.

DR. PASTERNAK: Here's one statement from that Low-Level Waste Forum document. "States and

Compacts agree that the ultimate goal is to provide safe, environmentally sound, reliable and permanent access for the disposal of all commercial low-level radioactive waste generated in the nation. States and Compacts must be allowed to pursue that goal unfettered, allowing them to identify solutions appropriate to the needs of their generators and their unique political situations."

It's a remarkable statement. No government agency -- very few of us in any realm operate unfettered. And I think this is -- I find it very defensive. And I will provide -- in fact, I think I have a copy of our critique, yes.

CHAIRMAN RYAN: If you provide copies for people in the audience as well, we can get them made.

DR. PASTERNAK: I'm concerned because we do want to go to Congress. We've been to Congress. We want to go to Congress again. We want to suggest these federal solutions.

CHAIRMAN RYAN: Alan, just in the interest, again, in giving everybody else a turn.

DR. PASTERNAK: Oh sure.

CHAIRMAN RYAN: If you could take a minute and then maybe wrap up your thoughts, we can look for more from you as we go around.

DR. PASTERNAK: Let me get to my specific recommendation.

CHAIRMAN RYAN: I wrote it down first because you said it first, your main recommendation is -- I've been kind of waiting for that.

DR. PASTERNAK: Here's what NRC can do and this is probably an appropriate time to bring this in.

Can the Nuclear Regulatory Commission examine this question? Are there regulator issues concerning the disposal of waste by NRC licensees at existing DOE facilities on some kind of an interim basis?

There is to some extent a precedent. The use of the Barnwell and the Richland facilities is an example. These are facilities that were built and operated long before 10 CFR 61. And we disposed of low-level waste at those -- the licensees disposed of their low-level waste at these facilities. Now true, these facilities operate now under 10 CFR 61. Could they have been licensed under those provisions? I don't know. Maybe somebody does. But they do operate under 10 CFR 61, even though they were not 10 CFR 61 facilities to begin with.

And what we're suggesting is a little bit different, that these waste be disposed of at existing

DOE facilities that are already there, where it's not going to take the 10 years to develop them.

Can the waste be disposed of at the existing DOE facilities by DOE rules in the near term? And if the Commission could look at that, it may be a trivial question. Maybe the simple answer is why not, fine, get it off the table. If there are some issues, can we start to deal with them now? So that when Congress considers this issue, this possibility is not offered --

CHAIRMAN RYAN: Can I just ask for clarification?

DR. PASTERNAK: Sure.

CHAIRMAN RYAN: Having worked in most of the agreement states my whole career, I hope you mean agreement for NRC licensees and agreement state licensees who are authorized through the agreement state program.

DR. PASTERNAK: I mean both.

CHAIRMAN RYAN: I just want to clarify that. Very often we forget agreement states and the bulk of licensees to whom NMSS is looking for input too. Agreement states are included. So I just want to make sure you would accept that.

DR. PASTERNAK: Oh yes, I appreciate that

clarification. When I said NRC licensees -- I certainly meant the agreement state licensees as well.

CHAIRMAN RYAN: Fair enough.

DR. PASTERNAK: Does the disposal of their waste at existing DOE facilities under DOE rules, create any issues that --

CHAIRMAN RYAN: The reason I mention that goes to authority. There's a state authority issue which I'm no expert on, on how the laws flow, but the NRC can probably say something about its rules and its licensees. Yeah or nay, I have no clue, but when you then say the state is authorized for certain activities under the agreement state authorization provisions, how the state then deals with access somewhere else, I think adds a dimension to your question and I just wanted to be sure that we had that very clear.

DR. PASTERNAK: Well, perhaps that's something to deal with.

CHAIRMAN RYAN: At least in concept as a dimension. You now have another authority, the state authority kind of in the mix. So everybody who has been here, I think Texas and South Carolina and California and others are all agreement states. Frankly, most of the action is in agreement states

these days.

DR. PASTERNAK: And one would hope that if such access were made available by DOE or by congressional action, that those states would be happy to see the waste safely disposed of.

CHAIRMAN RYAN: And again, I'm not raining on your suggestion, I just want to clarify that that dimension you recognize that's in there.

DR. PASTERNAK: Yes, and if it poses any problems, then the question is how can we deal with it to make this as simple an interim solution, as simple and effective as possible.

I'd also like to take a moment to praise the statement here this morning by Dr. Joseph Ring of Harvard. Without meaning to hurt anybody's feelings, I can say from my part, it is the most significant statement I have heard in the three days since I've been here, Monday, Tuesday and so far today. It illustrates the problems that are already being created for users of radioactive materials by the uncertain circumstances we live in today; the research that's being curtailed, the economic costs. It was just a very, very important statement and I hope everyone will take that to heart. I appreciate the comments yesterday of Mal Knapp and Paul Lohaus about

the NRC rules.

We think that 10 CFR 61 is a good rule. We do not advocate reopening the classification system. However, we certainly support the examination of the very low activity waste and the improvement or the expansion of disposal options for those waste that this Commission has looked at, that the Environmental Protection Agency has begun to look at, expanding those disposal options is very important.

Similarly, the on-going work of the Department of Energy in its off-site source recovery program is very important and is a good example of the construction role that the Department of Energy and the Federal Government can play in solving these solutions.

I also want to take a moment and this will wrap it up for me, to praise our own Southwestern Commission, having cited the problems that the defensive attitude of some of the Commissions in the Low-level Waste Forum about looking at alternative systems. The Commission, our Commission has urged the Governor, our Governor, Governor Schwarzenegger to support efforts to have the Federal Government make its disposal facilities available.

And I think one other entity deserves some

praise. There was a mention yesterday about the possibility of an advocacy role for the Nuclear Regulatory Commission. And I'd like to point to two instances in which the Commission has already illustrated that.

Two years ago, the General Accounting Office issued a report and the Nuclear Regulatory Commission commented on that report and here's what the key thing that the Commission said. "Not one new facility has been developed in this time under the Low-level Radioactive Waste Policy Amendments Act. Therefore, we believe it is in the national interest to begin exploring the alternatives identified in Appendix 2 that would potentially provide a better legal and policy framework for new disposal facilities for commercial generators of low-level radioactive waste. The Nuclear Regulatory Commission says it is in the national interest to provide a better legal and policy framework for new disposal facilities for commercial generators of low-level waste."

And in this Committee's meeting, with the Commission on January 11th, I believe it was, to consider your White Paper, several of the Commissioners sua sponte, is that the right Latin expression, mentioned the July 1 on their own

initiative, mentioned the July 1, 2008 cutoff as being a priority issue.

So the Commissioners, I think through these statements, are aware of the seriousness of the problem and we very much appreciate that.

CHAIRMAN RYAN: That is exactly why we're here today, Alan, because of their direction to us to follow up. So we're doing that and on we go. Thank you very much.

Let me turn over the floor to you, please, and we'd be happy to hear from Susan Jablonski from the State of Texas.

MS. JABLONSKI: Thank you, Dr. Ryan, and Members of the Committee. My name is Susan Jablonski. I'm here representing the State of Texas. I work for the Texas Commission on Environmental Quality, and Dr. Ryan, I echo your comments that the action is happening in the states. Low-level waste management is a state responsibility, but the states we've talked about in our C resources towards the low-level waste, I don't want to forget the efforts and the resources that states are spending in actually trying to implement these policies with low-level waste.

Our state has been very active for the last 25 years trying to implement part 61, and we've

had a lot of lessons learned. So I think that the discussion this morning about lessons learned is definitely something we don't want to repeat our past. And I think we find ourselves in a place today based on where we have been in the past. And so I'm going to talk a little bit about historically what brought us here.

You know, we are where the rubber meets the road in the agreement states, so I don't want to underestimate that there is focus needing to be on the implementation of how policy actually plays out in the states that are trying to implement these things. Historically, you know we have -- Steve Romano mentioned some of our early time -- I was actually on the other side of the fence as an applicant for seven years before I became a regulator, and lived through the Sierra Blanca experience and learned as I came into it as a health physicist and an engineer from a very pure, technical basis trying to come up with a solution, and learned very quickly that policy and politics had as much to do with it as the technical part of the equation. So that can't be forgotten when we talk in context of looking at solutions, that the technical solutions that are pure, looking at what might be the perfect or ideal solution is not always

what is workable.

So, you know, that's kind of what brought me to definitely where I am today. When we look in Texas at our sites that were not successful, we're not based on issues with problems with Part 61. They were based on political and policy discussions. And so I felt that it was very important for me to be here as part of this discussion to talk about our concern with possible changes in national low-level waste policy where we find ourselves today, very active midstream in a licensing process.

And I want to just kind of give some context to that. You've heard from our applicant, we are active in a technical review as we speak today. We're currently reviewing the waste control application and we're in the technical review. We're responding to the technical notice of deficiency that that applicant has provided for quality and content. At this point, I can't say that the licensability of the site has been -- the determination has been made yet. We're not at that point.

However, legislation in our state which establishes new approach that we're looking at in Texas, which is really a policy shift, was based on status quo and nothing changing. So if things do

change, I don't know what that does to our process. And I don't know how politically things will change, how technically anything could change based on Stanley requirements and that part of our requirements that are the state implementation part of it.

So my main reason for being here is you know, maybe we're the anomaly but we are out here actively working today.

There's been a lot of talk about low-activity waste. In Texas, we've really been on the forefront on that process. I mean, we have been looking at low-activity waste for many, many years in Texas. Actually, in my former life we provided for the 300 day half-life exemptions that are currently being used by our generators to use Subtitle D landfills for disposal of 300 day half-life.

And so, it's been a tremendous success. We have a mechanism in place that allows for those things to happen in our state. There has been some criticism of our process, but I don't believe that it's broken. It is a rulemaking process, but for us that gets the public participation and the other things as part of that process which has really been a successful equation for us.

We've been able to have that 300 day half-

life rule out there for 20 years without any ill impacts to it. And so I think that speaks volumes --

CHAIRMAN RYAN: Just as a point on that example, maybe this is a trend you can offer information on that would be helpful to the Commission. If for example, you could show how from monitoring or modeling or both kinds of data that that's in fact true, 300 years. I mean, 300 day stuff you don't have issues from some number of facilities and then maybe even a little history on what those facilities are. They all are arid, some are humid --

MS. JABLONSKI: Some are humid.

CHAIRMAN RYAN: All that. That would be helpful information, I think for the Commission to see the range of how those things were done. I know that's asking for a lot to pull information together, but if you can at least point us to maybe you have annual reports or other kinds of documents where we could begin to learn about that. We could even encourage it to staff it to be well worth a visit, you know if there are things they can learn on a trip to Austin to go to your other offices and so forth.

So I just offer that as a suggestion where I think it's good to hear those kinds of results, but it's even more powerful if we can get that information

to the staff so that they can see it.

MS. JABLONSKI: Sure. And a lot of that work was actually done up front, which I think was why it was successful. It wasn't a wait and see kind of approach to wait for monitoring to see if it was going to be a successful program. There was a lot of modeling done, site specific modeling, looking at all kinds of different sites that were included as part the package that went through rulemaking and public involvement.

The Department of State Health Services who we applied at the time with the Low-Level Waste Authority for that exemption, and they have all of those files in their records and I'll be happy to facilitate getting that information to any staff members that might want to see it.

And so it had to do with taking a very open approach and really looking at the issues in our specific state that we could address readily in giving some solutions and really showing that there were not issues in the long term. So you know, there have been comments made, you know, about the case-by-case basis for establishment. But you know, states are having to implement it in the ways that they see fit, which really vary across the country.

And for us, that equation it's a Texas generators only, which I know some of our sister states around us wish that they could send their 300 day half-life waste into Texas. But our authority is over the exemption of our own generators, so you have to be a licensee in our state. It's a licensed condition in your license that allows you to do it. And so that is the mechanism that has worked for us. It's not necessarily applicable to everybody that's out there, but it is a mechanism that has proved to work.

CHAIRMAN RYAN: And an option of many.

MS. JABLONSKI: It is an option of many. And I just wanted to mention that because it was brought up this morning in the session. We do have some other issues with this low-activity waste. Particularly, we have been weighing in over the last year on the 2002 exemptions from the State of Texas perspective, and we do have continuing concerns about the process.

Our experience with the process has been inconsistent and not transparent. It is propagated a lot of misinformation and confusion in our state of exactly what the process is. And there are still people in our state that are taking the position that

in the State of Texas, we should look at an exemption from the NRC under 2002 as a blanket kind of an exemption, and not weigh it at all. Not give any consensus, that we actually don't have the right to, that it's a matter of compatibility.

And we have continued, including my agency, to take huge issue with that that we absolutely have the right to weigh in. It is prudent for us to look at the state and site-specific issues according to these disposals. So I think that will be continuing to be an issue for us. It's definitely one on my chairman and commissioners' hot button list. And I also echo Dr. Ryan's comments on the concentration and quantity question, because that's at the heart of many of the things that we have brought up associated with that.

We also have rules for on-site disposal alternatives, as Henry Porter mentioned. And I think really he brought out some of the things that are already being done at sites within the flexibility of the framework, and I think those can't be overlooked because that's really what the system we have in front of us has allowed to happen actually out there in the real world with people disposing of waste.

And so with that, I'm going to limit my

comments. I really want to address any questions that might come up.

CHAIRMAN RYAN: Okay, great. Thanks very much. Bill House, welcome back.

MR. HOUSE: It's good to be here. I appreciate this opportunity again to be present and speak to the Advisory Committee. I want to talk for a moment on cost and the nuclear industry over the past couple of decades has optimized the cost in not only just managing operating waste at facilities, but also cleaning up a number of facilities that existed and decommissioning some actual nuclear facilities along the way.

They've optimized those costs in my opinion by two different things. They've minimized the volume of waste generated for these activities and they implemented alternate disposal methods to manage the low-concentration waste. So we are making progress there. Few if any of us have control of all the costs associated with doing our business. And with respect to the Barnwell site, even though we've had increased material equipment and labor costs, we've been forced, if you will, to cut our overall costs of doing business even in the advent of decreasing volumes allowed to come to a site. We all

need to be conscious of cost. We all need to address those things.

CHAIRMAN RYAN: Bill, just a question so we understand the terminology. I sometimes struggle with everybody being on the same page in terms of cost and price. For low-level waste, I know there's a component called tax or fee that goes somewhere. It goes to the State of South Carolina, or in your case I don't know exactly what the structures are in all the other sites currently. But maybe you could touch on that difference, because there's a real cost of operating a disposal facility and then there's a price the customer pays and generally that price is much higher than the actual cost. Am I fair on that one?

MR. HOUSE: Yes, I don't know about much higher. We'll decrease that margin --

CHAIRMAN RYAN: All relative terms.

MR. HOUSE: But let me --

CHAIRMAN RYAN: I just wanted to clarify, when you mean cost the cost of operating is not necessarily the price the customer pays at the gate and it's typically less.

MR. HOUSE: That's exactly right. We've been under economic regulation since the year 2000 and we've developed acceptable methods for identifying our

allowable costs at the site. We go to the Public Service Commission. We went through some of this yesterday. We've broken our cost down into three categories. Fixed costs of the facility, and that is the maintenance of the license, the basic requirements, the monitoring, the maintenance of the site. That's about half the cost or half of the expense of operating the disposal site.

Another part of that cost is variable cost. And that's associated with the incremental increase in cost of labor and equipment to dispose of each shipment of waste as it comes in the door. We have another category called irregular costs, and just these are non-reoccurring costs that we don't initially know the full magnitude of. I'll give you one example and that's the license appeal and license renewal process that we've been going through for the last six years.

The taxes, fees, annual license fees, things of that nature go, we pay those and we get reimbursed for that actual cost. Other identified allowable costs, we do get a margin as company profit for that. We've continued to decrease that portion, the fixed costs, and the variable costs as best we can to keep the overall expense of operating the disposal

site down.

And we will have to continue doing that, especially as we move into lower and lower waste volumes. I want to talk about disposal accidents for a minute, and I want to use these slides, just a couple of them, that I used Monday at the roundtable. But I want to put a different emphasis on them today. We've heard a number and a full range of comments, some to the point of saying we will be in a disaster today or tomorrow, and the sky is falling when we walk out the door.

I want to remind everybody there is two full years of access for every state on that map at the Barnwell disposal site. We have a history under the Atlantic Compact law of not receiving the full allowed volume in each given year. So there is allowable volume left for folks to approach us with, to work with us and the Budget and Control Board that actually sets the disposal rates, not Chem-Nuclear, and at least approach us and be able to get as much waste taken care of, disposed of safely, before that deadline occurs -- two years are left.

As far as the short-term improvements that we may be able to help this situation and dispose of as much waste and properly dispose of it as possible

is in the area of sealed sources. The NRC is continuing with the source tracking rulemaking, and in my opinion that will result in realization that a number of licensees specific and general licensees have these things in their closet. They're going to realize it and recognize it and hopefully they will opt, when there's no more use of that source, for secure disposal or some form of transfer for recycling. But the key goal is safe and secure disposition of these sources.

With respect to disposal of those, that have no further use the consideration of additional levels of containment, more robust containers, and evaluations of curie quantities that are suitable for disposal should be considered. With respect to irradiated hardware, we have the Rule of 10 for concentration averaging. That works well. It's appropriate and it right now allows us disposal of much of the irradiated hardware from nuclear powerplants.

Radiated hardware is zirconium or stainless steel for the most part. It's a very stable waste form. And I do understand the long-term rules associated with the concentration limits that are put in place because of potential intruders. One

consideration to be given to allowing dissimilar metals to be averaged in the same disposal container as the same components or similar components now.

These metals individually have the same concentrations of radionuclides, the same quantities of Nickel-63, Cobalt-60, etc, that individually do in separate containers. So to allow averaging of those, we could optimize some costs, optimize the better use of fuel boost base by allowing their disposal at the Barnwell site or other sites.

What can we do then in the longer term? And I'm glad this is going on the record, because I agree with the NRC's objectives and their strategic plan. Our full goal should be safe and secure disposal or management of radioactive materials and radioactive waste. We need to maintain and his objectives said promote. We do have a stable regulatory framework. We need to optimize that again, but also promote and maintain that in its place. That will provide us some efficiencies and effectives to apply the existing rules that we have and still maintain the established dose standards and goals that are in place in other regulations. Thank you.

CHAIRMAN RYAN: That's a great start. Again, we've been sitting for an hour and a half.

Maybe folks would want to take a few minutes stretch. I suggest that we take a short break right to 2 o'clock and then reconvene and go around again and have interaction and further comment. Fair enough? Ten minute break.

(Off the record.)

CHAIRMAN RYAN: Okay, great. I will start in reverse order this time with the idea that anybody that wants to observe or comment or add to what they've heard or offer a view that's different from what they've heard, I'd be pleased for the Committee to hear all of those views in the next hour or so and then we'll sum up and thank the panel for its work over the last couple of hours. So Bill, why don't you lead us off this time?

MR. HOUSE: I'm okay for the moment.

CHAIRMAN RYAN: Susan, you didn't have a lot of time to think about it.

MS. JABLONSKI: Well, I had one little comment on my side that I wanted to kind of bring up and it had to do with guidance. I know there has been some discussion about changing guidance documents. And from our perspective, you know, the guidance documents that we've used through this process this time around have been useful, not perfect, but useful

and you know, even changing those for us might put a spin on something in a hearing or an administrative process that would be an added element that might be negative for us if things are talked about.

CHAIRMAN RYAN: If you could give us your insights, too, with a little bit -- and I think I know the numbers of the documents but the specific NUREGS you've relied on an other things. If you could --

MS. JABLONSKI: I can provide you a list of all of them, sure.

CHAIRMAN RYAN: That would be great because, you know, that gives, I think, very explicit information to the staff that will help them understand your comment a little bit better.

MS. JABLONSKI: Okay.

CHAIRMAN RYAN: So we'd appreciate that.

MS. JABLONSKI: I'd be happy to do that and I just want to go on the record that there -- the Applicant had mentioned they believed we misapplied some of those and you know, of course, we take issue with that. We think that you know, there is a certain amount of professional judgment that's used in this, particularly the approach that we use to review a low level application that you know, you apply certain things and other things you don't apply. And that's

the flexibility of guidance. And so, you know, we think we've used what tools were out there for us to use and we have been able to move through the process and sit where we do today.

CHAIRMAN RYAN: Okay. One other thing, and I think if Dean is here maybe he could answer it, but I saw on one of the slides and I didn't ask it was most meritorious was a phrase used to describe the application. Does it have a specific regulatory meaning?

MS. JABLONSKI: Well, let me lay out kind of the process for those of you that aren't familiar with what we went through to -- you I did mention that there's been a policy change in the State of Texas of how we approach possible licensing for low level waste. Previously, it was going to be a state owned, state run site. And in 2003, actually three legislative sessions there were private entities coming in trying to get that legislation changed to open up the restriction on a public entity only for an applicant. And in 2003, there was much discussion, many bills, about changing the way that we would politically, policy-wise approach, on possible disposal and there's a hybrid created in Texas.

Really the approach in Texas is a hybrid. The

idea is that there will be a compact only facility or the potential for the compact only facility and that that applicant could be a private entity. Would also have the opportunity at the same time on the same site under one license to also have a federal waste facility for the economics and I think it ties into some of the discussion this morning about the viability of more and more sites. Even in Texas, the viability of a compact only facility, you know, we were told there would be no applicants if it was a compact only facility. So the hybrid that was created in Texas allowed for a competitive process and a very aggressive time line, a time line set out we would accept applications in a shortened period of time with a cutoff date from all comers. And they would have this opportunity to take federal facility waste on a facility to be owned by the Federal Government, not the State of Texas.

The law actually precludes the state from having any liability associated with the federal waste that might be accepted into our state for disposal. And so the competitive nature of that is that there's actually written into the legislation and rules that were written based on it that we would have this most meritorious application that was chosen through an

administrative review and a pseudo technical review and an initial technical review based on statutory criteria of who would be the recommended staff application to move forward through the process.

And so that's what was set up through all of what was looked at is that it would be a competitive process. Legislature really hoped to have multiple applications. That's what they envisioned when they laid out the process that they did, statutorily that we wrote rules to. We only got one application is the reality of it but yet the artifact in the legislation and our rules had this most meritorious review and required us to look at the statutory criteria and write a written report based on that, that we submitted to our Executive Director who then allowed us to move into a technical review.

So it was steps and hurdles we had to go through regardless of the lack of competition in the process.

CHAIRMAN RYAN: The previous language I've always heard is "accepted for review". Most meritorious was never offered at that stage.

MS. JABLONSKI: Right.

CHAIRMAN RYAN: I'm glad you explained that. Okay, thank you. Alan, any additional comments,

observations, thoughts to share?

MR PASTERNAK: Not at this moment. Well, perhaps one. I was asked during the break why, if the Federal Government was responsible for the demise -- words to this effect, if the Federal Government was responsible for the demise of the Ward Valley Project, why would I put my trust in the Federal Government to solve this problem for everybody? And at least part of that answer is, the Federal Government wasn't responsible alone. Certainly it was President Bill Clinton and the White House who put the kibosh on the land transfer. Things had gone very well during the administration of Bush 1. And if there was one lesson learned at least that I take away from the whole multi-year experience is that time is of the essence. If that project had moved, perhaps, one year ahead of the schedule on which it was, Ward Valley might be in existence today. That is if the land transfer had been complete under the administration of George Herbert Walker Bush, we'd probably have the project today.

So time is of the essence, but you cannot discount the fact that Gray Davis, first as Lieutenant Governor, did his best to stop the land transfer as a member of the State Lands Commission. The state could

have designated that land for an in lieu transfer in place of certain school lands and a mechanism that I don't fully understand. When that failed, we were told -- I remember sitting in a meeting where the Executive Director of the State Lands Commission told a number of us who were supporting the project and some other state officials, "No one in this room should want this issue to come to a vote before the State Lands Commission", and that was pretty clear. So we had to go to the Federal Land Policy and Management Act process, FLPMA, which was a little bit more involved and then they were able to delay it.

I have never placed the blame on the Secretary of Interior and in recent months, I have had my belief in his good offices in this business reinforced. The problem came from the White House. It was not Bruce Babbitt's fault, nor was it the fault of the Bureau of Land Management. It came from the White House.

Now, you've got different players.

CHAIRMAN RYAN: Alan, I've just got to tell you, I just think that some of the dissection of the political history is probably not our best use of time because we want to focus on the technical and regulatory aspects.

MR PASTERNAK: All right, let me give you one --

CHAIRMAN RYAN: If I could ask you to focus on those issues, that would be helpful.

MR PASTERNAK: Let me give you one other answer. Well, again, the question is, why is the method that we're proposing any likely to be more successful and I can say that the answer is, it's not perfect, but you don't want to continue to do the same thing you've done in the past unsuccessfully and hope for a different outcome.

And the second thing is, this method that we're suggesting would concentrate the responsibility and authority in one branch of government rather than two. Bill Clinton was not responsible for the development of a disposal facility. He probably felt he could fool around with it any way he wanted to. We're saying, let's make it a DOE responsibility. They're doing a good job in other areas. They're moving on greater than Class C. They've got an off-site source recovery program. We need one facility, national facility, except for Texas and the Northwest and South -- those who have taken their responsibility seriously. I'm talking about those who are in states that have not.

Let's just focus the responsibility in one government, in one agency that can do the job.

CHAIRMAN RYAN: I would point out that's in direct conflict with what three governors said in 1979.

MR PASTERNAK: And the National Governor's Association.

CHAIRMAN RYAN: Yeah.

MR PASTERNAK: And the irony of all this is that --

CHAIRMAN RYAN: I'm not trying to find the right answer of the two. I'm just saying that that's a 180-degree shift. It's interesting.

MR PASTERNAK: Well, no one has supported implementation of the Low Level Waste Policy Act stronger than -- more stronger than Cal Rad Forum and one reason was we had what seemed to be success for some time and then we started to look around and we said, "Nobody is going anything". And then the State of California gave the thing the coup de gras. You don't do the same thing for 26 years and hope for a different outcome.

CHAIRMAN RYAN: Thanks. It's good to hear you views. I appreciate the time and the effort you've put into it all these many years, and it's

helpful to hear your thoughts.

MR PASTERNAK: Thank you.

CHAIRMAN RYAN: Anything else?

MR PASTERNAK: Not at this time.

CHAIRMAN RYAN: Dr. Johnsrud.

DR. JOHNSRUD: Dr. Ryan, I tried to stay within your time recommendations and so I really didn't finish.

CHAIRMAN RYAN: We have plenty of time.

DR. JOHNSRUD: Good. I would like to make some suggestions that, oh, dear, I hope would not result in anyone here being put out of business or out of work, but do have to do with our concerns, and Sierra Club and elsewhere in the public realm about the not only continued reliance one existing nuclear facilities and the wide variety of uses of nuclear energy, but also and quite particularly the proposals of the Administration and many others to solve global warming issues by reliance on more nuclear power.

We've taken a bit of a look at the total system costs in terms of fossil fuels from the mining of the ore, the transportation of materials and on and on, that indicate that we would not gain a substantial benefit from moving in that direction, and obviously, we haven't talked much about it today, but there would

be substantially more radioactive waste generated to be controlled, and particularly so in view of what we are learning about very low dose irradiation and a variety of human health effects.

And again, I want to repeat, I'm so pleased that you will be having some exchanges with those good folk. So we would very much like to recommend that we minimize or halt all together the generation of -- well, preferably the generation of additional quantities of radioactive waste, that the reactor programs be phased out rather than increased and as near term as is possible. We strongly recommend that the Committee in turn recommend to the NRC that the current Category A, Class A of low level waste not be diminished by creating new lower activity wastes. I think that is definitely the wrong way to go and particularly since, in turn the probability, I think is pretty high that we'll have a continuation of further exit from regulatory control as the costs of management and perhaps difficulties of management continue to increase.

We would like to see, certainly, NORM and TENORM wastes brought under control, those that are made available in the environment in other activities. And there are quantities that have, over the years,

been released that we believe can be sought out and brought under regulatory control. We find them in various communities and of course, in various activities and they should be -- if possible, they should be reregulated. I don't know how much attention has been given to the -- within your community to the precautionary principle that says in essence, be very, very careful when we are uncertain of the adverse outcomes of our activities. And that too, I believe, fits in the realm of the concerns about low dose health impacts that we're only now really beginning to discover.

The entire bio-system, the biota are only now beginning to be examined in terms of impacts on other forms of life in addition to human beings. I am -- I do want to mention the concern about the -- I have to say the failure of the NRC and many other federal and state agencies to seek to want and make use of recommendations that come from members of the public from the affected citizens who essentially have very little voice in decision making.

One or two others, my view is that the states and in certain instances, municipalities need to have more authority to be able to determine standards within their communities. For example,

there are some states, there are some areas in my state that have heavy concentrations of hazardous activities and two those and adding nuclear facilities and radioactive waste facilities, creates a burden for those populations. And so I do think that there needs to be an ability of localities to exceed the federal standards. And I think that's quite enough for the moment.

CHAIRMAN RYAN: Thank you very much. And we'll turn to Scott Flanders, Scott?

DR. FLANDERS: Yes, I do have a few comments that I wanted to touch upon. The first is on very low activity waste and it's been mentioned a few times about our 20.2002 process and really the call we heard from Steve Romano earlier today and yesterday and from Susan on this panel about the concerns about the transparency and coordination of the 20.2002 process. And we recognize that and we're working to implement or develop some guidance on the 20.2002 process. And we're going to be coordinating with the states as best we can to do that.

This is an example -- and I talked about trying to get out in front of issues. This is an example where in the last couple of years there has been a significant increase in the request for 10.2002

requests and most of them started with US Ecology in Idaho and as a result of that increase, it expanded the number of staff that were involved in processing 20.2002s and when you have that kind of sudden growth, without specific guidance in place, there's a situation where you have a lack of coordination that you really need and we worked through some issues with the State of Idaho, working with the regulatory agency in Idaho to work on how -- the coordination process and we're going to use a lot of that information as well as, you know, interfacing with Susan and others to help develop that guidance.

We recognize that and we feel that guidance is critical and important as more and more of the 20.2002s -- the potential for more 20.2002s as we see by the discussion today that there is certainly interest in that. So that's one of the things, I wanted to let you know that that's an issue that we're currently working on. There was a Commission paper we actually issued talking about the transparency of the 20.2002 process. And that's another area that we feel is important and that we actually identified some things that we want to do in terms of making the process more transparent so the public at large understands exactly what do we mean when we say

20.2002. What does that entail? What's the process that's looked at? What is actually being done? So we want to allay all that and we feel that's important.

CHAIRMAN RYAN: I don't mean to press you with an unfair question but just so everybody has a sense, what's the timing of all this do you think, or if it's unknown, that's okay, but I just wanted to ask.

DR. FLANDERS: Well, part of what we're looking at is part of the strategic assessment, but the timing for getting the transparency, we're already starting to move on that and we'd like to get things -- and Jim, you keep me honest on the dates. We're trying to get some things on the Web probably by the fall of this year, maybe towards the end of the calendar year, and then certainly, the guidance will be some time after that because we feel it's important to coordinate on the development of the guidance, but hopefully --

CHAIRMAN RYAN: That's '07?

DR. FLANDERS: Right, but hopefully within -- you know, by the fall we'll have something on the Web that really explains what the process is but certainly we need to coordinate to talk with the interface.

There are a couple of other issues that were mentioned about the 20.2002 process that deals with exemption NRC material and this was an area that certainly in our interactions with the State of Idaho was clear the way the permit was written that the State of Idaho, you know, the way they've structured their permit, they recognized NRC exemption. I don't think that at any point in time the NRC was -- or would imply that we recognize the state's authority in terms of their ability to recognize what material is exempt, et cetera.

So I think that's something that I think we just need to make sure is transparent and we coordinate that we both have -- both not only the State of Texas but with other states as well, have a mutual understanding of how that works.

Another issue I'd like to mention is 61.58 and there's been a lot of discussion about 61.58. There's actually been a lot of good dialogue about it. There are a couple things that I wanted to talk about and I think Dr. Kroger mentioned some of those issues in 61.58, but what I wanted to touch on is that I thought I heard a few times that 61.58 we needed to have a way of recognizing site specific or case specific scenarios and situations. And if you read

61.58, it's looking at alternate waste classification based on the specific characteristics of the waste, the site and the disposal method.

CHAIRMAN RYAN: Just for the fun of it, let me read that for everybody's benefit. "The Commission may, upon request or its own initiative, authorize other provisions for the classification and characteristics of waste based on a specific basis if after evaluation of the specific characteristics of the waste, disposal site and method of disposal it finds reasonable assurance of compliance with the performance objectives in sub-Part C of this part", which is 10 CFR 16. That's the exact language.

DR. FLANDERS: That's correct. So there is a recognition and I think the regulation is there. I know there were some questions about the application and the guidance associated with it. I will also reference folks back to NUREG 1573 which, again, that is performance assessment guidance for one of the performance objectives which is 61.41 that goes to the public, but in there it talks about credit for engineer barriers and how you go about doing that.

So there is a method to give credit for engineer barriers. In looking at it, I don't know that it's explicit when it talks about the scenarios,

but certainly, when you're looking at site specific characteristics and additions, when you apply 61.58, it lends itself to a logical conclusion that you would base your scenarios on the characteristics of the site. So if, for example, you're talking about a facility that's in an arid environment or that has groundwater that's not potable, that you take that into consideration when you look at assessment, whether or not you meet those performance objectives.

So I think a lot of the infrastructure is really there. It was interesting to hear some of this discussion. Maybe part of the issue may be awareness of what's already there, so that might be something that we may want to explore a little bit and we look forward to hearing comments on, on some of those things as well. So those are just a few comments I had on 61.58.

Another comment I had on that particular angle that a lot of emphasis has been placed on, on 61.58 is recognition of a state's regulations as well. As everyone has acknowledged, the facilities that are currently operating and that are under consideration now are all in agreement states. And agreement states have their ability to actually -- as agreement states, they have to satisfy NRC's requirement in terms of

compatibility but they have some flexibility in establishing those requirements. And in one case, in South Carolina actually has a similar type provision to 61.58 in its regulations and that lends some flexibility what you can do at the Barnwell site.

The State of Utah doesn't have that provision. So one question that I have and would like to explore a little bit, talk about, I'm not familiar with whether Texas has it or not. One issue I'd like to explore a little bit is if you look out -- and this is helping us in the sense of priorities. This is partly why I'm getting to this issue. If you look out into the future a little bit, and Barnwell does actually close its doors to compact waste in two years, to have invested a lot of time in revising 61.58 or providing guidance around 61.58, it could be potentially be questionable when the State of Utah doesn't have that provision in its state regulations and the State of Texas, I don't want to prejudge the outcome, but the State of Texas may likely only be limited to only a few states. So it becomes something to explore.

You know, maybe there is some real good reasons why we still want to have that additional guidance around 61.58, but in terms of applying

resources and prioritizing activities, this potential, you know, scenario to be placed on it, we wanted to take that into consideration as we try to prioritize what our activities are. So that may be an issue that you may want to explore.

CHAIRMAN RYAN: Oh, sure, yeah. I mean, there's a range of views there. I mean, you could take the view that you've expressed, the eminent closure is certainly coming but by the same token, if there was some ways in which people could take alternate views for their existing BNC waste so that there could be kind of a better cleaning up of the house before Barnwell does lose access, it might speak that we need it quicker rather than later.

DR. FLANDERS: That could be and that's what we want to explore through this.

CHAIRMAN RYAN: And I think your point is the right one is that needs some careful consideration among the spectrum of possibilities to see what you want to do. You could argue that, you know, having waste in BNC storage wherever it is, nationwide after 2008 might not be as an effective health and safety priority as having it disposed with the other BC waste in Barnwell that's already in inventory. So, again, you know, who knows what the right answer is. We're

not here to try and gin up the answers at the table but certainly to shape the questions and see the range of views on how those questions might --

DR. FLANDERS: I wanted to propose that because, as I said, we have fellows registering those. It's an opportunity for people to think about it and maybe provide some perspectives or views on that in their input to use as part of their response to the Federal Register.

Two other things that I wanted to touch on going back to very low levels of waste, there was certainly some discussions earlier and certainly at the National Academy of Sciences report that came out they talked about the need for -- the need to risk inform how waste of similar hazards, if you will, should be treated and handled in the same manner and that there's a need to do that and the challenge in dealing with the origin based requirements that we currently have. Certainly, we're looking for information in terms of actions that will guide our activities. And I guess from a practical standpoint, to focus heavily on trying to change that -- the current structure, I don't know how beneficial that is, but certainly within the current structure, we're open to hearing potential things we could do in terms

of interfacing with the other agencies to try to coordinate activities so that, you know, risk -- things can be handled in a more risk informed manner across the different spectrums.

But in some situations, for example, the example that was mentioned earlier today with Maywood, even with a waste -- different waste classification scheme, I'm not necessarily sure that that would fully address that problem. Part of that problem is borne out of the unique situation that the Corps finds themself in with the owner of that site and that's presenting some challenges that the staff is continuing to work through.

We understand the Corps' views and we understand their concerns. And we really want to work through that and we're in the process of working through that issue as well. But I'm not sure that necessarily changing the current legal structure would necessarily benefit that situation.

Another and the last point I wanted to mention was concentration and averaging of dissimilar metals. I thought that was an interesting point that Bill brought up and I just wanted to try to follow up a little bit on that. If he could give us some sense of what kind of benefit, resultant benefit, could come

from examining concentration or the averaging process for dissimilar metals and dissimilar type container. What kind of -- how often do you see that, what kind of a benefit would it have in terms of facilitating disposal of waste?

MR. HOUSE: I can comment on that. One case that we're evaluating now and working on is a power plant that is no longer operating and they have some stainless steel and some zirconium metals. It's getting near the end of the fuel pool clean-up as far as non-fuel bearing hardware is concerned and the amounts of metal collectively are equivalent to two shipments for transport and disposal at Barnwell. And following the strict interpretation that we've lived to, to characterize the zirconium by itself and the stainless by itself, the niobium concentration, as I recall, is slightly above the Class C concentration limit in one of the metals.

If the full amount of metal taken collectively and put in those same two liners could be averaged together, they would meed Class C concentration limits. The container itself, each container would meed Class C concentration limits and would be acceptable for disposal at the site. If you look at a different aspect to the curies of each of

the radio-nuclides, the quantities in each of those shipments is no different than an individual shipment where there's sufficient amount of that same metal to use the averaging rules and become a Class C disposal container. That's one example there.

I would like to follow up on your asking for suggestions on, you know, in evaluations. The Barnwell license references the BTP on concentration averaging an encapsulation. And that's pretty descriptive when it comes to encapsulation of sources; the amount of encapsulation, the size of containers, et cetera, that are allowed for averaging. If we could consider again the potential that -- to get a particular sealed source disposed, a generator or processor, we'd be able and has been willing in certain cases, to go to several layers of containment for that sealed source, to provide a more robust container for disposal.

And that should be considered in possibly the NRC's evaluation of the -- that BTP could be someplace you could focus to evaluate without really changing regulations or regulatory structure.

CHAIRMAN RYAN: Okay, thank you. Alan.

MR PASTERNAK: I wonder if I can take up a different subject. Did you want to stay on the same

subject?

CHAIRMAN RYAN: Well, let's see if there are any other comments on this topic at the moment. If not, we can certainly move to another one. Any additional comments? All right.

MR PASTERNAK: May I turn to your consultant for some help. Is that cricket? Can I ask him a question?

CHAIRMAN RYAN: Extra couple of -- I'm just kidding. Sure you may, of course.

MR PASTERNAK: Mr. Kocher.

MR. KOCHER: Probably not.

MR PASTERNAK: As the Chair has noted, I tend to dwell more on the political aspects than on the strictly regulatory aspects of these issues, but I did pose a suggestion for a regulatory review. The question I put out was, is there -- are there any regulatory issues that come up with agreement state or NRC licensees disposing of their waste at a DOE facility under DOE rules and I guess the question I have for you is, have I asked the question properly, that has to do with shaping the questions that Mr. Ryan mentioned a moment ago, and do you have any thoughts that you could respond to that question at this moment?

MR. KOCHER: I interpret the question as a political policy one. I mean, there's nothing wrong with the DOE rules. There's nothing wrong with the performance assessments that are done at DOE sites. We basically play -- we have a different set of rules. I don't work for DOE any more. DOE has a different set of rules but the game more or less plays out in the same way. It's, perhaps, a little less public. They don't do rule making through the Federal Register, that kind of thing, but the performance assessments look alike. The facilities are more or less the same. Waste is waste. So it's -- I interpret that question as a policy political question because DOE has access to commercial facilities.

MR PASTERNAK: Yes.

MR. KOCHER: Why not the other way around?

MR PASTERNAK: Exactly, DOE -- there's competition for DOE waste. We talked about the free market and competition, but there's competition for DOE waste between DOE facilities and Envirocare. It doesn't occur for the other waste, but I appreciate your response you know, to my question. Would the Commission see any regulatory issues, and I guess the answer is no.

MR. KOCHER: I'm certainly not going to

judge the Commission.

MR PASTERNAK: Yeah.

MR. KOCHER: If I were a Commissioner, I would have a fair amount of initial reservation about this because it's the perception of giving up control over things that you're licensing.

MR PASTERNAK: Yeah, I see.

MR. KOCHER: Because I think the key -- to me what flipped my hearing aid on was when you said under DOE rules.

MR PASTERNAK: Yeah.

MR. KOCHER: The NRC might have a hard time swallowing that part.

MR PASTERNAK: I see. Well, could they find a regulatory basis that would -- time is short. We've got two years. There isn't time to relicense these facilities according to NRC rules and I don't know that DOE would want to do that. We're trying to find an expeditious path to a safe disposal facility. I understand that acceptance criteria at DOE facilities are tougher than they are at 10 CFR 61 facilities. That's what I've been told by one --

CHAIRMAN RYAN: I want to just offer a thought. They're not tougher, they're just different.

MR PASTERNAK: Different, okay. So

basically that's what we're talking about. We're talking about different but roughly the same safety.

CHAIRMAN RYAN: And I think that's the point that Dr. Johnsrud mentioned, and I think that's where we all ought to make sure we have at least one line to that question is protecting the public health and safety is the root of all of the system and that's one thing that we always have to keep mind. We can get there by lots of paths, perhaps, but that's going to be the focus. Whether it's tough or easy, you know, who cares?

MR PASTERNAK: DOE facilities might be --

CHAIRMAN RYAN: You've got to do what you do to get it right.

MR PASTERNAK: DOE facilities may be one such path.

CHAIRMAN RYAN: Maybe, but again, I think our speculation of what, you know, the Commission may or may not think about it probably is not as productive and helping Scott think through some of the technical issues. So let's see if there are any other questions. Any other topics, Alan?

MR PASTERNAK: No.

CHAIRMAN RYAN: Okay, Dave, anything else? Okay, let's start with Jim Clarke. Jim, any

questions, comments?

MEMBER CLARKE: Yeah, just a few. I'd just like to pick up on that exchange. I think when you say disposing of non-DOE waste at DOE facilities, this is a new concept to me and I just want to ask a couple of basic questions because what do you mean by DOE facilities? DOE has landfills that accept DOE waste, for example, at the Nevada Test Site. DOE also has constructed a number of disposal cells under the RCRA guidelines, they're called RCRA circular landfills and they have been constructed to deal with the waste that they will generate as they restore those sites.

So just are we talking about existing sites, and which DOE facilities, I guess is the question?

MR. KOCHER: I would think the answer is facilities for newly generated or stored low level waste at DOE sites. This is not clean-up waste we're talking about --

MEMBER CLARKE: Uh-huh.

MR. KOCHER: -- although on purely health and safety grounds, if one of the -- if one of the issues is high volume, low specific activity stuff, that's a lot of what goes into these circle cells, so why not?

MEMBER CLARKE: Exactly, and they're

constructed in accordance with the RCRA design, which came out several times in the course of this meeting.

MR. KOCHER: One issue that could arise is that DOE doesn't have this A, B, C business. They don't really -- well, there's just a lot of ramifications of that, that we don't need to go into here, but that's --

CHAIRMAN RYAN: That's the point. I really think we're kind of getting sort of far afield from our mission over these two days. We could probably spend two weeks on the details of Alan's report and interesting questions. But what I want to maybe draw us back to is we're looking at low level waste as it's dealt with under 61 and we're looking for opportunities for improving that system and the way it links out and we've touched on 2002 and other issues. So we sure appreciate your suggestions and views but I think I'd like to move us back to what is our main mission which is to give advice to the Commission on things within the 61 rule.

MR PASTERNAK: Well, what we're saying essentially is this; we have two years till we lose access for disposal of B and C waste and by "we" I mean just not the members of Cal Rad Forum, but I mean organizations that use radioactive materials in 34 to

36 states.

CHAIRMAN RYAN: Alan, I think we've heard that. You've given us those details over the last couple of days. So --

MR PASTERNAK: Is there something in existence that could be opened that would dispose of those wastes at least for some -- you know, we don't want to do this forever but could those wastes be safely disposed of at a DOE facility and would the Congress authorize that in order to solve this eminent problem?

CHAIRMAN RYAN: And I did capture your main point, which is what would the NRC view this, how would they view it. So we have captured your thought well, I think. I mean, we certainly have it in our record. We have the transcript that we can mine later, but I want to, in our remaining time, see if there are any other questions that we can address for the benefit of our other colleagues who are here as well.

And let me first turn our attention to member questions. So, Jim, do you want to continue on?

MEMBER CLARKE: That's fine. It seemed to be part of the discussion but I accept that and --

CHAIRMAN RYAN: Well, I mean, it sure has been and I don't mind it at all, but we really -- with time being short, we probably ought to make sure we cover all the issues, not just that one.

MEMBER CLARKE: No problem.

CHAIRMAN RYAN: Ruth.

MEMBER CLARKE: Thank you.

MEMBER WEINER: Turning to a totally different subject, I'd like to ask Susan to comment on the -- inciting your facility in Texas, what kind of competing resource use did you run into because I know in that area of the country, you have oil drilling, you have gas drilling. We at least on the WIPP have phosphate lining and I wondered if that was a question that you came up against and how it's being handled.

MS. JABLONSKI: Well, it's kind of tied to some of the issues that we talked about yesterday with the land ownership. Part of why the mineral rights question on the site is so complex and really there are so many parties involved is because this is an active oil and gas area and one of the most active in the country. It is in the premium basin, an area that has had historic oil and gas production. Actually on the site owned by Waste Control there's an active well on that site that has been active for many, many

years.

And so it is a consideration that we're currently looking at as part of the requirements to see what other resource competition there is. There's potash mining near this as well, as well as the salt formation which we've talked, you asked some questions about, its relation to WIPP. There's actually a salt formation moving through this whole region. It varies somewhat but yeah, that's one of the other issues that we're looking at as well.

So you know, being in the middle of the technical review, I really can't say what are conclusions are yet on that but it is an area that we're having to look at because this is an area of active mineral production.

MEMBER WEINER: I think this is a problem that may come up in siting facilities in the arid west, anyplace where there is construction. The other question I have and I'd just like to open this to whoever wants to answer it, being quite sensitive to what the Chairman has said that the primary mission in disposition of radioactive waste, low level waste is protection of health and safely, human health and we've also discussed other -- health of other species but let's say human health and safety.

How do you balance the siting of a facility and the disposal of radioactive waste in that facility with putative negative impacts, potential that say negative impacts on the population, how do you balance that off against protection of the health of someone who needs a medical procedure involving radioactive materials and can't get it because there is no way to dispose of that particular medical radioactive waste? This, I believe, is a dilemma that is faced and that the -- is faced by everyone and I'd like to get anybody on the panel, the panel's reaction to that.

CHAIRMAN RYAN: Any volunteers? Judith, please.

DR. JOHNSRUD: Well, having raised the issue repeatedly today, I think that -- so far as I know, all reasonable people recognize that in both medical practice and some research and a few other realms, the radioactive materials are of extreme importance and I am not acquainted with those who would say, "None, none, none", for medical uses and probably some others. However, without the influx of large quantities from the other generators and, of course, the power companies are high on that list, highest perhaps, apart from the military, we've really gone into those wastes particularly, probably a community

would be reasonably willing to consider a site if there were assurance of the sources of the content.

And this is one place where the source does, indeed make a difference but not where -- we've found certainly that no community was willing to take the wide open and potentially very expansive amounts of waste that were likely to be disposed of.

MEMBER WEINER: It's a nice idea in principle; however, the cost of disposal has economies of scale and I doubt you could site a facility, and I believe we all heard Dr. Ring say earlier that it is the medical institutions and the universities who really have a problem. The utilities can build on-site storage, but even Harvard has a problem and Harvard is probably financially best able to handle its waste, far more able than the university I was associated with. This -- I think -- I don't mean to start an argument here.

DR. JOHNSRUD: No, no.

MEMBER WEINER: But I do think there are economies of scale. You can't just have a site that says, "Okay, we're only going to take medical waste, nothing else".

DR. JOHNSRUD: Well, I think it could be argued that health benefit that accrues to the

patient, perhaps, needs to be covered as part of a health system. That there are sources of financing that we currently are not considering, but if, for instance, we were to go to single pair system for medical care. So my point would be that that's a matter that is, indeed, in need of a lot of exploration.

CHAIRMAN RYAN: Anything else, Ruth?

MEMBER WEINER: No, that was my question.

CHAIRMAN RYAN: William Hinze.

MEMBER HINZE: Well, a couple of comments , no questions in response to perspectives on NRC's strategic assessment. Perhaps Scott would like to respond to them. I really resonated with his first two points that he made in his off the cuff comments here. First of all, I think that to be true to itself, the Commission should consider the possibility of working towards risk informing in all aspects, and that includes low level waste. That's a hard task but perhaps some -- as part of the strategic plan, one could look at ways in which -- develop various paths forward to move towards risk informed.

I think the community is looking for that. Larry mentioned yesterday and Scott mentioned today the importance of timeliness, I think, in the criteria

in developing the strategic plan and I'm concerned about timeliness in the strategic plan. I've really jumped onboard strategic planning, but I also know it's a terrible time sync. It's a time sync and it's a thought process sync. And as a result of that, you know, I keep hearing this 2008. If the Commission wishes to do nothing about preparing for the closure of Barnwell, then I think that perhaps one of the options they should consider is stating that. But if they want to do something about the proactive -- and as you've mentioned proactive and getting ahead of the curve, you don't have much time to get ahead of the curve in my view on Barnwell and I don't know that you have the time to wait until you've got all of the editing and all of the gloss done on a strategic plan.

We heard from Mark Carver on another topic. We heard from Mark Carver that his utility is in great shape regarding B and C waste and if Energy is in great shape, I assume that the rest of the utilities are, but as we've just heard, as I believe Ruth just said and Joe said so well today, the non-utility sources of low level waste are the ones that I would think would be doing some fingernail biting at this time. And I don't know that it is fair to separate utility and non-utility. I don't really -- I'm not --

obviously, an expert on low level waste regulations but it seems to me that that whole thought which I think was generated this morning, is worthwhile looking at in terms of separating out those aspects.

I guess there's just a minor point that I want to -- that I want to make in terms of the strategic assessment because I'd like to see it not get in there. And that is we've heard over the last two days some comments about arid sites versus humid sites. That's slippery slope. That is a very, very slippery slope. It's not so much -- it's not just the amount of precipitation but it is how -- what is the form of that precipitation, how it occurs. I could go -- you know, I'll give you the hydrology class some other time, but that is a slippery slope and I don't think that you -- I would recommend that you be careful about moving into that area in the strategic plan. I guess that's enough for now.

CHAIRMAN RYAN: And just one question, Bill, on that. I think if I read you right, you're saying if you want to look at different sites --

MEMBER HINZE: Right.

CHAIRMAN RYAN: -- you look at characteristics and systems in total and in their behavior rather than individual --

MEMBER HINZE: Categorizing, that's a very slippery slope.

CHAIRMAN RYAN: Fair enough. Thank you.

DR. FLANDERS: If I could just respond to the comments. The first comment regarding the timeliness of the strategic assessment, no one is more concerned about the timeliness than I am. We really want to get on with the strategic assessment. And as I said, part of the reason why we feel as though it's so important, I think pointed out a few times before, is the importance of being practical in looking at specific actions that we can take.

We're not attempting to take on a strategic assessment similar to what Dr. Knapp talked about yesterday which was very involved and really the low level waste piece was a component, as he well-described, was a component of the larger assessment for the agency as a whole and was at a much different level. It truly was a strategic assessment. When you started looking at whether or not NRC should continue with the responsibility of regulating low level waste or send that responsibility to the EPA. I mean, it truly was, you know, in the classical sense it was a strategic assessment.

We use the term strategic assessment from

the standpoint of having orderly thought in terms of how you take on your activities, you know, so that you're working with the sense of purpose, as I said earlier. So our strategic assessment, while we use that term to describe it, is not as sophisticated as what Dr. Knapp talked about. So our concern really is identifying specific activities that we can take primarily in the near term or that we need to take in the near term to position ourselves to deal with current issues and upcoming future issues. So we need to look out a little bit into the future but we're primarily focused on near term activities.

Part of the challenge that I really see is is once we -- not so much completing the strategic assessment. As Larry mentioned earlier, we're trying to shoot by the end of this year to complete the strategic assessment. It's the following activities. You know, strategic assessment is going to lay out here are the things you should do and when. It's doing those things and completing all those activities in a timely way, which is really going to present a challenge as we talked about the resource constraints that we have. So that's really where we're going to be faced with a lot of the challenge. So I agree with your comments there and we are sensitive to focus on

that and that's why we wanted to be very practical and that's why we're interested in hearing from stakeholders and their views on issues that are most critical.

As Susan well pointed out, most of this work is going on in the states, so certainly to hear from the state regulators and their views or from generators or disposal operators such as Bill and generators, are important to us to help focus on what activities we can take on that would be most beneficial.

In terms of non-utility sources of low level waste and separating them out from utilities, as we look forward to the Barnwell situation, that's something that we've given thought to and we're actually thinking about as well, and recognizing for example, I'll use an example, the extended storage guidance. Looking at that and whether we need to update the guidance, how we need to update it, the time in which we do that, which -- where should we focus our energies first, we're thinking about that because as Ralph Andersen mentioned yesterday, for the utilities, they're taking it on their own initiative in some ways to look at what they need to do around storage, where other generators, non-utility

generators, I'm not as aware of any particular activities and there may be a need for us to focus on guidance in that area for them first as opposed to focusing on utility guidance. So we're taking that into consideration. That's an example, but we're taking into consideration the need to potentially look at --

MEMBER HINZE: That's great but the financial assurance aspect of it that we heard about today you know, from a university atmosphere, that's terrible important.

DR. FLANDERS: We understood that, yeah, and those points were well-taken this morning and there is certainly good information for us to consider.

CHAIRMAN RYAN: A personal dimension, Scott, that I just want to add to that point. Sorry to interrupt but I've often heard people raise the question of capacity when they really mean price. "Oh, there's no capacity for low level waste. Oh, there's, you know, a dwindling capacity". Well, that's not really the case. At the moment, there's lots of capacity. Even if Barnwell closes its doors to outside of the compact, they've got a lot of licensed space that won't be used or will be used over some longer haul. So it is access at a price that

folks are willing to pay. So in the one case where the utilities do have more robust resources, that's within their scope to manage, but it's the universities and the hospitals and others that, perhaps, don't have the wide body of resources.

So I just want to make sure that everybody is clear when we talk about access to capacity for one segment versus another, we're really not talking about capacity, we're talking about sometimes the cost drivers that are out there more than capacity.

DR. FLANDERS: I agree with you on that.

CHAIRMAN RYAN: Just a second, let him finish.

DR. FLANDERS: And the last point you talked about was arid versus humid. We recognize that and it's primarily site characteristics is where we focus and that's what we do when we're doing performance assessment, we focus on the characteristics of the site, not -- we don't make assumptions of whether something is arid or humid. I think people use that as a convenient way to describe site characteristics in some way but your point is well-taken, yeah.

CHAIRMAN RYAN: We used have semi-arid and semi-humid, so that's even worse trouble. So this is another step down the slope. Alan, comments?

MR PASTERNAK: The issue of economics, and Ruth referred to it, is important. What we want is, speaking again on behalf of users of radioactive materials of various kinds, is assured, affordable access, three A's, AAA, assured, affordable access and our organization has never supported the idea of a separate facility, disposal facility for universities and medical centers and other research institutions as opposed to utilities because obviously, you get the most economic outcome if everybody is using the same facility. One advantage of relying for a few years to meet this 2008 problem, one advantage of relying on DOE facilities is that they are already taking substantial quantities of waste. So if, for whatever reason, large generators choose to store their waste on site and small generators don't and want to send it off for disposal to a DOE facility, they can do it without suffering a financial penalty because that site they're using is already taking a lot of waste.

CHAIRMAN RYAN: That's an interesting view, thanks. Any other questions or comments? We are at the hour for our -- how about moving down the line just a little bit, all right.

MR. CAMPER: I just want to clarify something on 20.2002.

CHAIRMAN RYAN: Now might be the best time. Sorry? Tell us who you are, use the microphone.

MR. CAMPER: Larry Camper, Director Division of Waste Management and Environmental Protection with the NRC. Thank you, Dr. Ryan. Several times today the 20.2002 process has come up in our discussions and often times, the word “exemption” is used when that regulatory pathway is mentioned. And sometimes there have been some concerns expressed about the process. I know, Susan, for example, a few moments ago expressed some concerns about better understanding the process and I frankly thought it might be worthwhile to take a moment or two for the benefit of the Committee and others in attendance and just touch upon that particularly regulatory pathway.

And the first point that I would make is, is that 20.2002 is not an exemption per se. If you look at the regulatory part, what you find it says is that, “A licensee or an applicant for a license may apply to the Commission for approval of proposed procedures not otherwise authorized in the regulations”. It does not necessarily -- so the process is not pursuing an exemption as such. Now, it goes on to describe the contents of the application and it’s things you might expect; of course, a description of the waste, an

evaluation of information relative to the nature of the environment where the waste will be disposed, the nature and location of any potentially effected licensed or non-licensed activities and last but not least, of course, is considerations of ALARA and meeting the dose limits in this part.

Now, with regards to the dose limits in this part, there is no dose constraint implied or explicit for 20.2002. In this part means Part 20. And several years ago, when I had the decommissioning program, I recall communicating with the Office of General Counsel about what did that mean because -- and I see Jim is smiling. Because in fact, the staff had gravitated toward, as a matter of practice, implying dose constraint of a few millirem. And while I thought that was a good thing to do, in terms of a place to be, it nonetheless troubled me that I didn't have a clear regulatory position to stake that position upon.

The feedback that I received from the Office of General Counsel was is that the dose that's being referred to should be interpreted to mean 100 millirem. One hundred millirem is exposure that's allowed to a member of the public. However, we have never approved a 20.2002 disposal approach that even

closely approximates that number. As a matter of fact, they've been on the order of a few millirem and they continued to be so.

CHAIRMAN RYAN: Just a clarifying question, Larry, if I may. Is that because it's kind of an overriding view of ALARA?

MR. CAMPER: It is. There's an overriding view of ALARA.

CHAIRMAN RYAN: Thank you.

MR. CAMPER: Absolutely. The next point I would make is that the question of exemption, how did exemption come into this? Given that I said that this regulatory mechanism is not an exemption, per se, because it is not, in fact, there have been 20.2002 authorizations granted in the past that contain no exemption. Historically, as I mentioned yesterday in my comments, back in the days with this was 20.302, I believe it was or 304, 302, I think, the majority of such requests were disposal on site.

The industry has gravitated away from that practice because of the implementation of the License Termination Rule in 1997, which, of course, has a 25 millirem dose limitation and ALARA. Why bury something today that you may have to exhume later to meet a dose standard. Most of these requests in the

recent past have been for material to be disposed of in RCRA facilities and the dose evaluation has been on the order of a few millirem. Where the exemption came into this discussion and I think it causes some confusion, is that the Office of General Counsel within the last couple of years, has advised the staff that the recipient or the material needs to be exempt for it to be received at a RCRA facility and I don't use those terms interchangeably easily because at first we were told by the Office of General Counsel that it was, in fact, the material that needed to be exempted but then more recently we were told that it is, in fact, the recipient of the material that needs to be exempted, that being the RCRA operator.

We continue to have dialogue with OGC. In fact, Scott recently sent a memo to OGC asking for further clarification on that point so we can do it consistently and the process is more clear. I mean, Susan raises some valid points about the process and it's not so much what the regulation itself says, it's more about how it gets handled. Now, we -- the other point that we're pursuing is how these types of requests are handled within the agency on the two different major sides of the organization, that being NRR and NMSS are handled differently.

A 20.2002 request on the NRR side of the house is processed via a letter back to the licensee. In our world, it's processed via a license amendment. So we're working, again, to get consistency in the process. And then the last point I would make is that we -- in terms of process, I think what's really needed and we are working on this, it's not so much what the regulation says or even the review process. It's the decision criteria that we use and we're working to find ways to better articulate that so it could be more readily understood. The process, therefore, becomes more clear in terms of outcomes are reached.

And the last point I would make is that the Commission, as I again mentioned just briefly in my comments yesterday, the Commission recently directed the staff to make the 20.2002 process more publicly available, more aware for those that are effected by it. And we propose some actions to the Commission which the Commission agreed to accept in an SRM and we're moving to put more information on the website for example, and make requests of this nature and the outcomes more publicly aware so that certainly those effected meaning those that are nearby these sites or those that have concerns about this type of issue or

these types of disposals, can in fact, have an awareness. So I thank you for taking the time to do this, but I thought it would be worthwhile to clarify just what this process is and how it generally works.

CHAIRMAN RYAN: Great, thank you. At this point, we're open for any other comments, observations, questions?

MS. D'ARRIGO: Since we're on 20.2002, I'll -- Diane D'Arrigo, Nuclear Information and Resource Service. Since we're on 20.2002, I wanted to ask how many applications there have been and at one point I thought none had been rejected, but it was referred to that some have been rejected, so I wanted to know how many there have been, how many accepted, how many rejected and how many are under consideration right now.

DR. FLANDERS: Obviously, I don't have those numbers right at my fingertips in terms of how many applications we've received and how many have been rejected, but over the last couple of years, I would say we've been averaging about three to four requests a year and I'm -- I would need to check but I don't believe we have any currently under review right now. There's -- we talked about the Maywood issue that that's somewhat unique. It's akin to a 20.2002

process but I think the Court clearly pointed out the challenges and the legal interpretation and their ability to use the 20.2002 process which we're looking at but which, you know, we're continuing to work with them on those issues.

But off the top of my head, I can't think of how many we currently have under review.

MS. D'ARRIGO: But you said some had been rejected? Have there been some that have been rejected that you know of?

MR. CAMPER: Yes, there have been.

DR. FLANDERS: Yes, there have been.

MR. CAMPER: Two come to mind. One is the one that's already been discussed and that was the recent one by the Corps of Engineers because it did not have standing for the agency to grant such a request. The other was probably now it's been three or four years ago, Big Rock Point came in with a 20.2002 request. The first time around it was rejected. It was subsequently approved. The basis for rejected in the first time around was that they were -- the utility was wanting to dispose of certain material in a landfill. And the landfill had as a condition of operation that it could not receive radioactive material.

The utility asked us below a certain level, I don't recall the details of just what that level was now, but below a certain level, we would not view that material as, in fact, radioactive. Well, that simply wasn't possible. We could not do that and we so notified the utility. Subsequently, the utility was able to negotiate an understanding with the operator of the landfill site that they could, in fact, receive quantities of radioactive material at very low levels that were envisioned by the request. That one, again, dosed out I think at something on the order of three millirem I believe, one to three, probably three at most.

DR. FLANDERS: Jim, do you have a feel for how many we currently have under review?

MR. KENNEDY: Jim Kennedy on the staff. Yes, Diane in SECY 06-0056, that's the Commission paper on improving transparency, there's a table in the back of that table that has all of the 2002 requests for the last six years.

MS. D'ARRIGO: Okay, and that's public?

MR. KENNEDY: Yes, it is. It's on the website.

MS. D'ARRIGO: Great.

MR. KENNEDY: There's been 20 in the last

six years and I think there -- I know there are at least three, there's maybe four that are still open that are pending right now.

MS. D'ARRIGO: And does that say where they went in that report? Does it say --

MR. KENNEDY: Yes.

MS. D'ARRIGO: Okay, thanks.

CHAIRMAN RYAN: Could you just give that SECY number again for everybody's benefit?

MR. KENNEDY: 06-0056.

MS. D'ARRIGO: I had other questions but I could come back in a minute.

CHAIRMAN RYAN: Does anybody else have questions or observations? If not, please proceed. You thought you were going to get a break, didn't you?

MS. D'ARRIGO: I thought I could --

CHAIRMAN RYAN: Take your time.

MS. D'ARRIGO: I think what I wanted to convey is that generally, we'll be opposing the risk informing proceedings partly due to the experience on the reactor side that risk informing has actually led to relaxation in protections and also due to the concern that all of the risks are not being fully evaluated and that those who are doing the evaluation have a bias or a tendency not to be looking at it in

a fully objective way or not balancing the concern of the public for concerns about low dose radiation health effects.

So that's another reason why we would not support it. We'd also want to -- another problem with the risk informing -- well, actually what I would say is somewhat interesting is that for years on the low level waste issue, and part of the reason that many of the proposed sites were defeated in the last 20 years or so since that signing was taking place is that the radioactive material that was to be disposed has a hazardous life longer than the institutional controls. And many organizations, environmental groups, including the Sierra Club have policies supporting a redefinition of low level waste that would exclude materials that are hazardous longer than that 100-year institutional control period.

So from that perspective, the public interest has been calling for -- public interest groups have been calling for reassessing radioactive waste on the basis of hazard or longevity of hazard for decades but now the way that this is being -- that this is being reflected now and I haven't had a chance to go through the whole National Academy Report, nor the whole White Paper, but it looks to me like the

entire trend in risk informing and risk evaluation is to reduce protections and to deregulate or reduce -- is to go in the exact opposite direction. Instead of taking the most concentrated and longest lasting materials and pop that up into a high level waste category and deal with it with the other long lasting wastes that give somewhat similar doses, what we're looking at here is taking a big bulk portion of it and treating it as not radioactive or putting it into other regulatory structures with less protection for the radioactive -- the presence of radioactivity.

So I guess what I'm pointing out is that since the way that risk informing has been utilized on the reactor side, since the way that it's being discussed is all that I've seen so far in the reports that are being looked at are in the opposite direction of protections against exposure to radiation, we would have to oppose it and then I would say one other thing about -- that I reiterate from earlier, is that if the public isn't involved, if those who were going to be exposed to the stuff are not involved, those who don't have a legitimate concern about the health effects of low doses are not involved in the process, you only take people who generate the waste and have waste streams to deal with and make the decisions on the

risk, then it's not going to be publicly accepted and I don't know in which final court the decision is made, is it an NRC rule or site-by-site rule but we're going to come up against this over and over, because there is across the country and around the world, a big campaign toward more precautionary protection and this is going in the exact opposite direction.

CHAIRMAN RYAN: Thanks, Diane, I appreciate your comments. I'd offer you two thoughts. One is we've been very particular and scrupulous in the White Paper to not offer any interpretation or recommendations. We simply tried to document as accurately and precisely as we could the history of regulation so that folks who don't have access to things about ocean dumping in the '60s and other things, have the facts and we tried to be very factual. So we really appreciate any comments folks have or corrections. We've gotten several on the original White Paper drafting. We're working toward NUREG.

So this is not a policy document of any kind. It's simply an attempt on our part to document the legislative and regulatory history from the beginning of the world of radioactive waste management forward. So hopefully you'll see that and appreciate

the information that's been compiled in a hopefully useful way.

The second is the Academy Report which I've been involved in, has -- and again, I'd appreciate your views after you've had a chance to read it fully, rather lengthy chapter written by folks I view to be experts on issues of participation so I hope that you will share your insights when you've had a chance to take a thorough look at it. I know it's a relatively new publication but there was a very concerted effort to address those issues. Now, whether we've done them adequately or whether you'd like to offer comment on it, we'd sure appreciate anything you can offer, but there was a very concerted attempt to try to address how to do exactly what you're saying and the phrase was to involve the publics, plural, not just one but you know, and I learned a lot from the participants on that committee that were expert in that area. So again, I offer that observation to you to think about as you digest the stack of materials from this meeting.

MS. D'ARRIGO: And then I did make, and the one opportunity that we had to talk to that committee, I pointed out that there were a number of people on that committee who had been active proponents of

either BRC or equivalent type deregulations for their agencies or their in some cases international, in some cases non-governmental and in some cases governmental agencies that were actually actively participating in promoting the BRC type or clearance concepts. And so it seemed like it wasn't a big surprise that it would come out as a conclusion here, that that would be a way to go and we've --

CHAIRMAN RYAN: Again, I would recommend that you direct that to the Academy because they have a process balance on their committees and like it or not, that's the process they use.

MS. D'ARRIGO: Well, if you recall, I did make that point to the committee and to the NAS at the time, but I'm just reiterating it now because I don't know how much value is going to be weighted on this report and I'll say that, again, we need to have those of us that have concerns and opposition, at least part of the discussion more than a 10-minute presentation and then it's given lip service, but it's not really -- and then you line up people that support risk based, risk based, risk based and who even knows if they -- you know, what their perception of that means, and I'm saying that there's a perception of that that could be good if you were talking about taking higher

risks and putting it into a better regulatory structure but what it's interpreted to mean thus far appears to be one that is in the opposite direction.

CHAIRMAN RYAN: And again, I'm not trying to dissuade you of your view. I'm simply saying you said you hadn't had a chance to read it. I was just kind of --

MS. D'ARRIGO: Not your advisory -- or your December 27th document, no.

CHAIRMAN RYAN: Okay. Any other questions or comments? Alan, one last comment.

MR PASTERNAK: Just an administrative comment. I will be e-mailing to Mike Lee Cal Rad's critique of the low level waste forms discussion of issues document.

CHAIRMAN RYAN: Thank you. I think we agreed that we have that in the record.

MR PASTERNAK: Yeah, Mike asked me to put that on.

CHAIRMAN RYAN: You will make that available. That will be part of the package that will be publicly available for all the materials we've gathered, slides, all that will be available.

MR PASTERNAK: Mike has --

CHAIRMAN RYAN: Probably the NUREG document

as well.

MR PASTERNAK: Mike asked me to put that on the record.

CHAIRMAN RYAN: Thank you. Yes, Dr. Johnsrud?

DR. JOHNSRUD: And may I ask, is there a time limit to comment on the documents?

CHAIRMAN RYAN: I don't think there's any strict time limit. Do you have a time when you could offer comment or --

DR. JOHNSRUD: Well, I'd love to try, yeah, yes.

CHAIRMAN RYAN: We typically put these packets together fairly quickly, so Mike, do you have any sense of -- a couple of weeks?

MALE PARTICIPANT: (Inaudible)

DR. JOHNSRUD: Both the White Paper -- I'm sorry, both the White Paper and the NAS. I assume those --

CHAIRMAN RYAN: The NAS comments are due to the NAS. That's their process.

MR. LEE: The ACNW White Paper is available on the Internet at the ACNW home page. I think, as Dr. Ryan pointed out earlier, our time line for trying to finalize the NUREG now is some time by the end of

the summer, before the end of the summer.

DR. JOHNSRUD: So any comments need to be immediate.

CHAIRMAN RYAN: Fairly quick, up to three weeks would be great.

DR. JOHNSRUD: Very good.

MR. LEE: And I'd just like to point out that --

CHAIRMAN RYAN: I want to emphasize we worked very hard to make that a factual document, documenting the history, so -- and, you know, Mike and I both find it fascinating because we kept pulling strings and finding things to, you know, mention and tie together in a time line and it was quite a good exercise and hopefully it will be a useful resource to everybody that's interested in the topic.

MR. LEE: Just to put a spin on it, the version on the Internet is kind of the first shot out of the cannon. We've spent some time improving on it and fine tuning and as Dr. Ryan pointed out, connecting a few more of the dots, so --

CHAIRMAN RYAN: And we've gotten a lot of good comments from that initial read, saying, "Oh, you didn't", "Okay, we'll put that in", and we've added some other documents we didn't have listed initially

and so forth.

MR. LEE: It's a work in progress.

CHAIRMAN RYAN: Any other questions or comments?

MS. D'ARRIGO: One more. 61.58, is there also a SECY or some kind of a public document that can tell us what applications have been made, if that's the process that's used for implementing 61.58?

DR. FLANDERS: If you could clarify your comment. Are you asking if there's been any applicational use of 61.58?

MS. D'ARRIGO: I'm asking that but rather than expecting you to recite the answer, I'm asking if there's a public document that I can go to like you gave me the SECY paper for 20.2002.

DR. FLANDERS: Actually, there's not. I think the most applicable application of that has probably been done in the State of South Carolina. It's been reported a few times recognizing that their regulations are similar to ours. So that that might be the most applicable case but in terms of NRC application of 61.58, I don't know that there's been any cases of that.

MS. D'ARRIGO: But there seems to be encouragement of it or --

MR. LEE: If I could just offer this observation, if you go to the Statement of Considerations for both Part 61 in the draft and the final rule and places like that, you usually begin to get a sense for what the staff's thinking at the time was for what the intent and the -- of a particular requirement in the regulation, be it 61.58 or anything else.

DR. FLANDERS: Certainly. The Statement of Considerations gives you a global explanation of the regulation and the staff's intent for the use of that regulation but in terms of specific examples of where it's been applied, the most applicable information would be from the State of South Carolina.

MR. LEE: And I see Paul Lohaus sitting against the wall over there. He may be able to help us out. I don't know if there was anything in the draft or the final EIS on 61.58.

MS. D'ARRIGO: But it would be the state regulations that are compatible to 61.58?

MR. LOHAUS: Thank you. Paul Lohaus. A couple comments on this question; one, I talked a little bit about Section 61.7, Diane on the first day. And one of the reasons we put 61.7 into the rule was to provide some institutional knowledge on the intent

of the staff in developing the rule and there is discussion at the end of the discussion on the waste classification system relative to the purpose and intent of 61.7.

That particular provision my memory, my recollection is that it's a Category D matter of compatibility but I would rely on the staff to answer that question which means that it's not required that each agreement state adopt that provision.

MS. D'ARRIGO: You're talking about 7 or 58?

MR. LOHAUS: Section 61.58. And I think during discussion at the meeting, I think there was at least one state that was identified, Utah, that may not have developed that provision.

Second, in looking at the draft and final Environmental Impact Statements, I would look first at the final Environmental Impact Statement and the section within the final Environmental Impact Statement that addresses the waste classification system. I believe there's discussion in that section as well relative to the intent of the staff, not only on the overall classification system but also the important -- the importance of maintaining flexibility given the staff's knowledge at that point in time.

In other words, we recognize there would be

changes in waste form, improvements in processing, greater use of engineered barriers and reliance on engineered barriers in disposal technology and some of the areas that were talked to in this meeting to me are very good example of what the staff intended in terms of use of that provision. The example that Bill House raised relative to the different metals and the practical problem that's presented there, that's a very good example that the staff intended that could be addressed through this provision. And I think but Mike Lee mentioned the Statement of Considerations on the Rule, both the draft and final. I would also look at those as well.

I hope that answers your question, gives you some further information --

MS. D'ARRIGO: No, I mean, you're talking about the philosophy of it and the thoughts about it, and I want to know if it's been used or if it's in the process of being used.

MR. WIDMAYER: Diane, Derek Widmayer of the ACNW staff. I think the staff is kind of challenged to go back and try to remember everything that's happened over the last 25 years but I don't think there has ever been any application of 61.58 to come up with an alternative classification system for low

level waste. I think that's fair to say. And what they're talking about now is doing something new.

CHAIRMAN RYAN: So the answer is, we're not sure but we don't think so.

MR. WIDMAYER: Correct.

CHAIRMAN RYAN: Is that the answer? Okay.

MS. D'ARRIGO: But South Carolina has done it.

CHAIRMAN RYAN: I don't --

MR. WIDMAYER: I think South Carolina --

CHAIRMAN RYAN: -- came up with an alternate concentration table. Henry is here. He can speak for himself.

MR. PORTER: Henry Porter with the State of South Carolina. We haven't looked at -- let me say what we have looked at. We have reviewed some requests that have come under our regulation that's similar to 61.58 and those are discrete waste. I think over the past five years or so we've done about five of those. We've had about five over the past five years about one a year. Some examples of that would be some small discrete material that was within a reactor vessel that was disposed of.

Most of the waste there was within the Class C limit. There was, from what I recall, probably less

than a cubic foot of waste that was within that container that it exceeded Class C limits. Significantly more radioactivity associated with the waste that was within the Class C limits than that that was outside of those limits. We haven't ever done a more global type of approval allowing a certain waste stream or a certain radio-nuclide that exceeded the concentration limits for C, for Class C waste to be approved, though.

As far as having something like the SECY document that has a list of those in it, the state doesn't have anything like that. We have those requests in our files and our files are certainly open to the public to be reviewed if you would be interested in that.

MR. LOHAUS: Maybe one further comment, too. I'm not aware of any SECY document that provides quote, "a listing". One case that I recall and the staff may want to comment further here, but I believe the State of Washington did a specific review relative to disposal of the Trojan Reactor Pressure Vessel at the Hanford facility and I believe that that analysis, the State also asked for some technical assistance from NRC and that analysis was reviewed by the staff as well. But what I don't recall is whether the state

applied an equivalent -- actually applied 61.58 or did an independent analysis which demonstrated that the performance objectives would be met.

DR. FLANDERS: I believe it was the latter. I believe it was --

MR. LOHAUS: Okay, thank you, Scott.

DR. FLANDERS: I think they demonstrated the performance objectives would be met and not necessarily 61.58 alternate classification. But that is another example that's worth looking at if you're interested in this.

CHAIRMAN RYAN: All right, thank you, Paul. Appreciate the clarification, the questions and the responses. We're at the point in our agenda where we'll typically sum up. I think it's clear that we will develop a letter that will go to the Commission on the fabulous body of information we've gathered over these couple of days and we appreciate every panel member and every speaker's presentations, participation and enthusiasm for the topic. I think we've garnered quite a large fraction of the national expertise in this area from many points of view and many parts of the regulated community and the interested communities and we appreciate everybody coming in.

So I guess the themes that I heard were kind of a couple of general ones. One is that wholesale changes to 61 don't seem to be the vote. That there is increments of improvement or change over a number of areas and perhaps folks have different views on what those incremental changes should be, but that that was an approach that we could maybe identify what we heard as the range of views on topics and offer the Commission insights as to what the body of folks here were offering in that area. So incremental changes.

I think it's also helpful to have a bit of the history for past sites and I think Todd Lovinger's comment of, you know, mine the successes as well as the failures is a very good caveat. I don't know if Todd is still here or not. Todd, and we appreciate that insight. That's very helpful so we need to think about that.

We've gotten good input from generators, from waste site operators on their issues and I think we'll mine the transcripts and certainly from the applicant community. We've heard effectively from the applicant and from the regulator that's reviewing the application and I think that's really very helpful because you know, it's in process, yet you've come and updated us on your process and how that's going both

from the applicant's point of view and your own. So we have a current view of how 61 is working along in Texas.

I think it's helpful to have the dimension to have the NMSS staff here that have to deal with the unintended consequences of what we think about going into other areas, 2002 and perhaps others because when you pull the definition of low level waste string you find it leads to many other connections, so we're happy to have that. And again, I thank the audience participants and everybody at the table for their attention during the two days and their open, honest and clear communications and we have a wide variety of views. So that's kind of my general sum. Allen, do you have anything you want to specifically identify at this point?

VICE CHAIRMAN CROFF: No, I don't.

CHAIRMAN RYAN: Okay, Ruth, how about you?

MEMBER WEINER: Well, I think -- we still talk into the microphone, I guess.

CHAIRMAN RYAN: Of course, we're on the record.

MEMBER WEINER: Oh, we're on the record, okay. I think there were several themes that came out it seems to me and I'm sure everybody had captured the

same thing. I think we have a difference of opinion on the if it ain't broke don't fix it, that everybody is dealing with Part 61 as it is and certainly we can't do anything about the legislation, only Congress can do that. But there is a difference of opinion as to whether something else needs to be done regarding Part 61.

I think it was very clear to me that there seemed to be a sentiment that you don't change the rule which having worked as an NRC contractor at one time, I can certainly appreciate. It's tough to change rules and that you use the other mechanisms available to do this. I believe we should address the question of the closing of the Barnwell facility in 2008 to out of compact B and C waste. I'm quite sensitive, as I said before, to what Dr. Ring said which is that this -- the availability whether it's by cost -- and I quite agree -- whether access is because of cost or because of space, that something -- that question needs to be addressed.

That's all I can think of off the top, but I've got a lot of notes.

CHAIRMAN RYAN: Great. Dr. Clarke?

MEMBER CLARKE: Well, I thought you put it very well, Mike. I'm not sure there is a difference

of opinion on if it's not broken don't fix it. The way I interpreted that was we don't need regulatory change but within that, there are opportunities possibly through guidance or other mechanisms, as Ruth stated, to look at a number of things. And I think those are the sub-topics that we'll identify as we mine the transcript. I've written down several.

CHAIRMAN RYAN: And I think, we heard, you know, several levels of that. We heard about license condition changes. We heard about case-by-case types of analysis that looked at things. We heard about regulatory guidance in a couple of different forms and you know, single case kinds of determinations which would be case specific. And then, you know, we heard about generalized guidance which typically takes the form of one or a different form of documents. You could think of a Reg Guide or SECY document or other kinds of things that would help the staff become more uniform in its thinking and interpretations and, you know, there's a wide dimension of those kind of things that happen within the agency.

So I agree with you, Jim. I think mining that is effective and we can certainly develop a pretty good letter that covers these bases.

MEMBER WEINER: One more?

CHAIRMAN RYAN: Sure.

MEMBER WEINER: I think we should consider the presentation -- very carefully the presentation made by the Army Corps of Engineers that deals with large quantities of very low activity waste and that's a question that, again, I'm not proposing any kind of rule change or I don't think we've heard that, but that is something that we should look at as an issue.

CHAIRMAN RYAN: Yeah, I think that's right and I think it runs the gambit. As I said earlier, we deal with a wide range of concentrations and a wide range of quantities. And it's in the consideration of all those elements that you can identify and assess risk across the board for any situation. So we can't look at part of it. We have to look at all of it and I think, you know, when we do that, we can come to a better insight into risk and perhaps what schemes would be useful.

With that, again, I just for schedule purposes, I think we will be dealing with our draft letter at our July meeting and that's scheduled for the week of, anybody can help me, please.

MR. LEE: The 19th.

CHAIRMAN RYAN: The week of July 19th. It will be on our agenda that will be posted on the web

according to the Federal Register requirements sometime in June. So look ahead to that for those of you that may want to follow-up and observe that letter-writing session. Jim?

MEMBER CLARKE: Well, if we start the week with Monday, it's July 17th.

CHAIRMAN RYAN: July 17th is the Monday of that week, but the exact days and the agenda will be on the Web, so stay tuned. Any other questions or comments? Yes.

MR PASTERNAK: I wanted to thank you, Mike, and the Advisory Committee. This is a very important role that you all are playing in terms of developing the background paper and hosting this workshop to bring all the stakeholders together and provide an opportunity to share views and as I sort of talk through and really didn't go into a lot of detail, this, I think was really key to helping solve the low level waste issues that were present in the late '70s and early '80s and provided the substance of Part 61. And it's a very valuable process to bring everybody together, share their views, identify what's here and I think the Committee is playing a very valuable role and just want to express appreciation.

CHAIRMAN RYAN: Thank you very much. I take

that as high praise coming from your years of experience in this context. So thanks very much. We appreciate it. Any other last comments? Yes? Help yourself, who you are and --

MR. HEARTY: Brian Hearty, Army Corps of Engineers. And I just wanted to say thanks for that consideration of the large quantity that we generate. What I wanted to point out specifically is that while we're doing this under CERCLA and we're going out and cleaning up these old sites from 40 or 50 years ago that are contaminated in neighborhoods and moving that waste to other facilities, most of the waste that we're cleaning up is not currently licensed. It's not subject to licensure, most of it, so therefore, when we have exceptions that take NRC case-by-case basis, or guidance changes, under CERCLA, we can only look to promulgated rules to develop clean-up levels or to do standards. We can't really incorporate guidance into our decisions.

So that's why we really did want to look at rule changes, because that way we can address it under CERCLA when we're doing our clean-ups.

CHAIRMAN RYAN: Thanks. That's a helpful clarification. Thank you. Any other comments? Hearing none -- I'm sorry, Mike.

MR. LEE: I just want to thank everyone for participating the last two days. We know some people have come very far and we hope that participants have also got something out of the meeting besides the Committee. So thank you.

CHAIRMAN RYAN: Yeah, I know, it's very helpful to have everybody's input which we appreciate very much. The Committee will take up a letter that we're going to write. Dr. Clarke's leading that effort on our decommissioning effort and we'll take a 15-minute break and reconvene at 4:00 o'clock to take up that letter. So those that wish to depart, please do so. If you'd care to stay, it's an open session on the decommissioning workshop that we held and we'll be off the record at this point.

(Whereupon, at 3:44 p.m. the above-entitled matter concluded.)