

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON GREATER-THAN-CLASS-C LOW LEVEL RADIOACTIVE  
WASTE

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THURSDAY

AUGUST 13, 2015

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ROCKVILLE, MARYLAND

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The Commission convened in the  
Commissioners Hearing Room at the Nuclear Regulatory  
Commission, One White Flint North, 11555 Rockville  
Pike, at 9:00 a.m., Stephen G. Burns, Chairman,  
presiding.

COMMISSION MEMBERS:

STEPHEN G. BURNS, Chairman

JEFF BARAN, Commissioner

WILLIAM C. OSTENDORFF, Commissioner

KRISTIN L. SVINICKI, Commissioner

NRC STAFF PRESENT

LARRY W. CAMPER, NMSS

CATHERINE HANEY, NMSS

MICHAEL WEBER, Deputy Executive Director for  
Operations

ALSO PRESENT:

THOMAS KALINOWSKI, DW James Consulting

SCOTT KIRK, Waste Control Specialists

CHARLES MAGUIRE, Texas Commission on  
Environmental Quality

ARJUN MAKHIJANI, Institute for Energy and  
Environmental Research

FRANK MARCINOWSKI, US Department of Energy

JANET SCHLUETER, Nuclear Energy Institute

## 1 P R O C E E D I N G S

2 CHAIRMAN BURNS: I invite our first panel  
3 up to the table. I want to welcome everyone to this  
4 morning's meeting of both our external panelists and NRC  
5 staff, representatives from the Department of Energy  
6 and Agreement States, as well as members of the public  
7 who may be attending or watching this Commission meeting  
8 remotely.

9 Today, the Commission will be briefed on  
10 the current regulatory environment and challenges for  
11 the disposal of greater than Class-C low-level  
12 radioactive waste. And this meeting will provide the  
13 Commission an opportunity to hear directly views from  
14 a panel of external stakeholders, as well as a panel of  
15 regulatory staff on several significant topics related  
16 to GTCC low-level radioactive waste disposal.

17 First we will have presentations from a  
18 panel of external stakeholders, including Ms. Janet  
19 Schleuter, Director of Fuel and Material Safety at the  
20 Nuclear Energy Institute will discuss industry views.

21 Mr. Thomas Kalinowski, Vice President of DW  
22 James Consulting LLC will discuss low-level waste  
23 streams from nuclear power plants, including greater  
24 than Class-C waste streams.

25 Mr. Scott Kirk, a Vice President of  
26 Licensing and Regulatory Affairs of Waste Control

1 Specialists, will discuss low-level waste disposal site  
2 interest in accepting GTCC waste.

3 And Dr. Arjun Makhijani, the President of  
4 the Institute for Energy and Environmental Research,  
5 who will give a public interest perspective on the  
6 topic.

7 After presentations from the first panel  
8 and Commission questions, we will have a brief break  
9 before hearing from our other panel.

10 And so with that, would any of my colleagues  
11 like to say anything? Commission Svinicki.

12 COMMISSIONER SVINICKI: Yes, I would.  
13 Well, good morning and thank you to our invited  
14 participants, to the NRC staff, and to others who are  
15 tuning in. This is a complex topic. I wanted to  
16 clarify for myself that I really appreciate I think the  
17 perspectives that are shared today will be very valuable  
18 background. The Agency has made public a paper on a  
19 related topic, SECY-15-0094 that is before the  
20 Commission and it is not the purpose of today's meeting,  
21 of course, to deliberate that or to arrive at any  
22 conclusions about it. So, again, I am excited. I am  
23 in data gathering mode here and I just look forward to  
24 learning more background about GTCC and low-level waste  
25 issues. Thank you.

26 CHAIRMAN BURNS: Thank you, Commissioner.

1 Anybody else?

2 Okay, first we will begin with Janet  
3 Schleuter from the Nuclear Energy Institute to begin the  
4 first panel. Welcome.

5 MS. SCHLUETER: Good morning, Mr. Chairman  
6 and NRC Commissioners. I would like to thank you for  
7 the opportunity to participate in today's briefing and  
8 also for early release of the SECY paper 15-0094.

9 For information to some, the Nuclear Energy  
10 Institute is an industry policy organization that  
11 addresses generic issues. Our members include  
12 entities that are licensed to operate commercial  
13 nuclear power plants, fuel cycle facilities, uranium  
14 recovery operations, and materials users. As well, it  
15 includes plant designers, major architects and  
16 engineering firms, and other organizations and entities  
17 that support the global nuclear energy industry.

18 With that introduction, I would like to  
19 begin with two caveats. First, NEI offers a response  
20 to the information provided in the staff paper,  
21 primarily from a technical and a policy perspective.  
22 As the staff points out, there are legitimate legal  
23 questions regarding whether allowing a state to license  
24 and regulate disposal greater than Class-C and  
25 transuranic waste is appropriate under the Low-level  
26 Radioactive Waste Policy Act amendments. It appears

1       that those issues have been appropriately identified in  
2       the paper and, I would imagine, have been considered  
3       extensively by your Office of the General Counsel.

4               My presentation today will not address the  
5       legal issues but NEI would be happy to make the  
6       appropriate industry representatives available to  
7       engage on them, should you wish.

8               Secondly, industry's views are provided in  
9       the absence of any knowledge of the Department of  
10      Energy's position on the staff action options in the  
11      paper or the contents of its soon to be issued Final  
12      Environmental Impact Statement on GTCC disposal. We  
13      have not been privy to any discussions that may have  
14      occurred between NRC, DOE, and the State of Texas. So,  
15      again, my comments are necessarily limited to providing  
16      industry's initial reaction to the information in the  
17      staff paper.

18              Slide 2, please. As an overview, it is  
19      important to recognize that industry-generated GTCC  
20      waste is safely and securely managed today by a variety  
21      of licensees that are mentioned on the next slide. We  
22      are not aware of any public health and safety or  
23      environmental concern or issue that needs an immediate  
24      or near-term regulatory response. That being said, we  
25      do believe, based in part on the jurisdictional question  
26      raised by the State of Texas to NRC, that the time is

1 right to implement a predictable regulatory framework  
2 for the disposal of GTCC and TRU wastes.

3 Inherently, such a framework must be  
4 carefully constructed by the federal government with  
5 the Agreement States and informed by industry's  
6 experience in safely managing such waste. Such  
7 decisions must also fully address all related  
8 jurisdictional, policy, legal, and technical issues.

9 To that end, Options 1 and 2 would both  
10 provide a path forward, where Waste Control Specialists  
11 would be authorized to dispose of  
12 commercially-generated GTCC and TRU waste at its Texas  
13 facility. The difference between the two options, as  
14 you know, is who would license and regulate the  
15 facility, NRC or the State of Texas.

16 Further, under either option, the staff  
17 states that it would modify Part 61 to address an  
18 internal inconsistency in the definition and regulation  
19 of TRU waste. We support clarifying the regulations  
20 and trust it would not result in unacceptable licensing  
21 delays.

22 Finally, Option 2, we believe, offers  
23 unique benefits, which I will discuss more in detail  
24 later. Next slide, please.

25 For background, GTCC waste is commercially  
26 generated in various forms, types and volumes at

1 different categories of licensees, and Agreement State  
2 licensees, such as the ones listed here. More  
3 specifically, such waste includes, but is not limited  
4 to, activated metals, contaminated equipment, scrap  
5 metal, glove boxes, filters, resins, soils, other  
6 materials, debris from irradiated fuel analysis, and  
7 large bladder radiator and other sealed sources.

8 Enclosure 2 of the staff paper provides an  
9 excellent overview of the forms, types, generators, and  
10 volumes of GTCC waste and my colleague, Mr. Kalinowski,  
11 will provide detailed information on waste generation  
12 at the nuclear power plants.

13 It is also very important to consider that  
14 most, if not all, licensees work very hard not to  
15 generate GTCC waste in the absence of a permit disposal  
16 options. Further, some licensees implement NRC's  
17 Branch Technical Position on concentration averaging  
18 and encapsulation that allows some GTCC waste to meet  
19 the Part 61 definitions of low-level waste and be  
20 disposed of accordingly. Next slide, please.

21 In the absence of a current disposal  
22 option, GTCC waste is stored safely on-site and  
23 typically, within a secured and controlled area. These  
24 areas often include such features as intrusion  
25 detection, surveillance and radiation monitoring, and  
26 are part of the licensee's integrated security program.



1 We are not aware of any safety or security concerns  
2 regarding our current management practices of such  
3 waste.

4 Further, WCS is currently authorized by  
5 Texas to dispose of waste that are the responsibility  
6 of the federal government in its on-site federal waste  
7 facility. So, from a risk perspective, the disposal of  
8 commercially-generated GTCC and TRU waste is  
9 essentially no different. In that regard, Option 2  
10 helps facilitate a consistent regulatory approach by  
11 Texas regulating the safe disposal of such waste.

12 As you are aware, WCS submitted a petition  
13 for rulemaking to the State of Texas and Texas has raised  
14 an important jurisdictional question to the NRC. In  
15 response to action options for how the NRC might proceed  
16 are under consideration. And we commend the staff for  
17 its timely and comprehensive response to the issue in  
18 a very informative information staff paper. Slide 5,  
19 please.

20 As one might assume, there are related  
21 issues that need to be considered. For example, we  
22 eagerly await issuance of DOE's Final Environmental  
23 Impact Study on GTCC waste disposal. We trust that the  
24 FEIS will include a preferred alternative that may or  
25 may not explicitly consider the jurisdictional matter  
26 before the Commission today. In absence of the FEIS,

1 we trust that NRC staff has fully addressed DOE's input,  
2 as it actually formed the two regulatory action items  
3 described in the staff paper.

4 Also, as the Commission is aware, the  
5 public comment period on a proposed Part 61 modification  
6 regarding the disposal of certain waste streams just  
7 recently closed. In commenting on that proposed rule,  
8 NEI and others raised the question regarding the need  
9 to assess the impact of that rulemaking from potential  
10 future modifications to Part 61 waste classification  
11 tables. The concern is that future modifications to  
12 the tables could impact current rulemakings,  
13 specifically, how waste is categorized. The same issue  
14 is relevant here and should be considered. The purpose  
15 of such consideration is to avoid future unintended  
16 consequences from today's decisions. Slide 6, please.

17 As I stated previously, both options 1 and  
18 2 appear to be reasonable paths forward, in that either  
19 option would permit consideration of the currently  
20 operating WCS facility as a permanent disposal option  
21 for GTCC and TRU waste. NEI fully supports that  
22 outcome.

23 As clearly stated in the paper, Option 2  
24 would permit the State of Texas to actually expand its  
25 current regulatory role over the site. It is also  
26 important to note that NRC would continue, if not

1 actually expand its current oversight role of the Texas  
2 program. Next slide, please.

3 We firmly believe that, provided that the  
4 statutory and regulatory implications of Option 2 are  
5 fully addressed, that Option 2 has certain unique  
6 advantages that include but are not limited to the  
7 following.

8 Option 2 can be implemented in a manner that  
9 we believe is adequately protective of public health and  
10 safety in the environment. Our confidence is based in  
11 part on the fact that the Agreement State of Texas has  
12 over 50 years of experience regulating Atomic Energy Act  
13 material, in addition to regulating non-AEA materials  
14 and sources of radiation for even longer. Further, the  
15 state is very familiar with the characteristics and  
16 operations of the WCS site, given its past licensing  
17 decisions and current regulatory role.

18 Additionally, we are confident that a  
19 rigorous licensing process and decision would be made  
20 in consultation with the NRC. Further, NRC will  
21 continue to oversee the agreement state program through  
22 periodic reviews that are performed under its  
23 integrated materials performance evaluation program.

24 Option 2 is clearly the most efficient and  
25 least resource-intensive of regulatory option, in part,  
26 since the current regulatory role of the State of Texas

1 would simply be expanded.

2 As you know, under Option 1, NRC would  
3 actually become the regulator of only a portion of the  
4 existing site. Further, as the staff points out,  
5 Option 1 would require significantly more NRC resources  
6 for the staff to familiarize itself with site  
7 characteristics, conditions, and et cetera.

8 Further utilizing a currently operating  
9 waste disposal site is by far the most environmentally  
10 friendly option, since an entirely new site disposal  
11 would not need to be cited in Texas or in any other state.  
12 That fact, in and of itself, is significant.

13 Finally, it is our understanding that the  
14 WCS site operates with the support of the local  
15 community, clearly, a key attribute for success of any  
16 waste site. Last slide, please.

17 In summary, industry minimizes its  
18 generation of radioactive waste and safely and securely  
19 manages it today. Our goal, however, is to see it  
20 disposed of permanently. The time is right and  
21 industry supports well-informed decisions to implement  
22 a regulatory framework that provides for the permanent  
23 disposal of GTCC and TU waste at the WCS facility.

24 Industry prefers option as a reasonable and  
25 the most efficient and effective path forward, provided  
26 that all statutory and regulatory implications are

1 addressed.

2 Finally, to increase transparency of these  
3 decisions, we respectfully suggest that one or more  
4 public meetings be held with the responsible  
5 decision-makers and affected and interested parties to  
6 ensure that all jurisdictional, policy, regulatory, and  
7 technical issues are clearly identified and understood.

8 I thank you, again, for the opportunity to  
9 participate in the briefing today and I look forward to  
10 the dialogue. Thank you.

11 CHAIRMAN BURNS: Thank you. Mr.  
12 Kalinowski.

13 MR. KALINOWSKI: I also would like to thank  
14 the Commissioners for the opportunity to talk to you  
15 this morning.

16 My presentation is going to focused more on  
17 GTCC waste that is generated from nuclear utilities.  
18 There are other sources which need to be addressed but  
19 I think, primarily, for my company's interest, we are  
20 looking at what nuclear utilities generate. Next  
21 slide.

22 There is two basic categories of waste from  
23 nuclear power plants, process waste streams and  
24 activated metals. Process waste streams consist of  
25 resins, filters, DAW, contaminated items, building  
26 rubble at the time of decommissioning, and then

1       activated metals. And the activated metals are going  
2       to be the primary source of GTCC waste from the reactors.

3               Operational considerations, the way the  
4       plants operate, the use of the Branch Technical Position  
5       will pretty much eliminate GTCC waste from the process  
6       waste streams, with the exception, possibly, of some  
7       cartridge filters.

8               Activated metals from the reactors include  
9       consumable items, hardware control blades, which are  
10      generated during the course of operation, but the  
11      primary volumes are going to be at the time of  
12      decommissioning, when the vessel itself is disassembled  
13      and the internals are segmented and sent for disposal.

14              So, during the course of operation, there  
15      should be very little waste, GTCC waste. The majority  
16      of it will be done at the time of decommissioning.  
17      Slide 3.

18              This slide gives a list of some of the  
19      primary components that are going to be GTCC waste.  
20      Activated metals, and this consists primarily of  
21      stainless steels. There are some specialty metals that  
22      are part of fuel assembly components but those are  
23      relatively small volume. Stainless steel is going to  
24      be the largest part of it. There will be some  
25      instrumentation pieces that are GTCC by themselves and  
26      contain some special nuclear material. It is usually

1       in small quantities. In the course of operation, we can  
2       typically average these with the rest of the component,  
3       dispose of them as low-level waste.

4               There are some cartridge filters from  
5       pressurized water reactors that occasionally become  
6       GTCC waste. The reason for it is a little questionable  
7       sometimes. A lot of these are based on carbon-14, which  
8       is estimated and our methods for estimating that are not  
9       always the most accurate. There is a lot of very  
10      conservative assumptions that are used in that. So, it  
11      is possible that some of the cartridge filters are, with  
12      some better calculations, could not be GTCC.

13             I did look at DOE's estimates in the  
14      materials presented or prepared for this presentation.  
15      I think the DOE estimates, in general, are fairly  
16      reasonable. They do tend to be a little bit  
17      conservative because the activations and LSEs that they  
18      used in their estimates include quantities of certain  
19      elements that are not well-known in stainless steels.  
20      They are probably over-estimated and I don't think it  
21      takes into account the advantages we can take with  
22      concentration averaging or refined activation  
23      analysis.

24             I don't think the DOE estimate takes into  
25      account plant life extension adequately. The analysis  
26      looked at 60 years but there is talk out there right now

1 of going to 80 years. That might affect the volume  
2 estimates a little bit. And there are also some new  
3 alloys being developed for use in nuclear power plants  
4 that do contain actual measured quantities of some of  
5 the elements that will activate to  
6 classification-controlling radionuclides. And that  
7 should also be considered for the future. Next slide.

8 Getting a little more technical,  
9 presenting a little bit of the average concentrations  
10 of some of the class-controlling radioisotopes in  
11 hardware. And this is pretty much what is seen right  
12 now in Class-C hardware. Niobium-94 is a fraction of  
13 about 0.47 for Class-C fraction. Niobium-94 in  
14 stainless steels, again, is based on an elemental  
15 composition, essentially a less-than value, minimal  
16 value, based on contamination in the material, in the  
17 base material. So, our numbers for niobium-94 are  
18 likely to be overestimates. Those elemental  
19 compositions are based on NUREG/CR-3474, which did some  
20 testing at Battelle Labs to come up with elemental  
21 compositions. But the sample size was fairly small and  
22 some of our clients have done their own testing and have  
23 seen niobium concentrations in stainless steels far  
24 lower than the standard or the 3474 values. So, my  
25 personal belief is that we are probably overestimating  
26 that stainless steel.



1                   Nickel-59 is a very small fraction,  
2                   typically in Class-C. Nickel-63 then becomes the  
3                   dominant radionuclide for determining that waste is  
4                   greater than Class-C in the long term.

5                   In the course of operations, individual  
6                   components are typically within a factor of 2 or 10 of  
7                   the class limit and so they are concentration averaged  
8                   in accordance with the Branch Technical Position.

9                   Transuranics are the other radioisotope  
10                  that is of concern for GTCC waste, primary transuranics  
11                  are not going to be an issue with commercial power  
12                  reactors. We only see significant transuranic  
13                  activities when there is significant fuel failures.  
14                  That is, the industry has done a very good job of  
15                  reducing that over the years. Even some of the sites  
16                  that have experienced fuel failures early on in the  
17                  1970s and early '80s, they did not generate significant  
18                  quantities of transuranics. So, it is primary on a  
19                  contamination layer. Next slide, please.

20                  So, GTCC waste from nuclear power reactors  
21                  is actually going to be pretty much like the Class-C  
22                  waste that they are generated, consisting of the  
23                  activated metals. When we go into stainless steel from  
24                  core regions, we see Table 1 fractions about a factor  
25                  of 18 of the Class-C limit. And again, that is  
26                  primarily niobium-driven, which, I will repeat again,

1 is probably an overestimate.

2 Table 2 fraction up to a factor of 16 of the  
3 class limit, primarily driven by nickel-63. It is not  
4 significantly different than the other kinds of  
5 low-level waste that is disposed of.

6 GTCC waste from other metals, again, there  
7 are some fuel component constituents, high nickel  
8 alloys that will generate higher levels, very small  
9 volumes. And again, the cartridge filters. Those are  
10 primarily driven by tech and iodine, which, again, are  
11 estimated radionuclides. They are based on scaling  
12 factors and there is considerable latitude in  
13 developing those. I think they are, again,  
14 overestimates.

15 Last slide. In conclusion, most of the  
16 GTCC waste from commercial reactors is similar to the  
17 Class-C waste they generate. The same materials, a  
18 little higher activity.

19 The isotopes driving classification are  
20 mostly the shorter half-life radionuclides. Nickel-63  
21 has a half-life of about 100 years. That is manageable  
22 in a near-surface environment with the proper controls.  
23 And I think if we develop a site with those additional  
24 controls or analyses, I think it is very feasible to  
25 dispose of this kind of material in that manner.

26 Thank you.

1 CHAIRMAN BURNS: Thank you. Mr. Kirk.

2 MR. KIRK: Let me start. First of all,  
3 thank you very much for the invitation. I am very  
4 pleased to be here to share WCS's views on greater than  
5 Class-C waste. Next slide, please.

6 WCS commends the NRC, the Texas Commission  
7 on Environmental Quality and the Department of Energy  
8 for making significant strides that could provide a  
9 possible pathway for the disposal of commercial and  
10 federally-owned or -generated greater than Class-C  
11 waste. I think this is a matter of national  
12 significance at the moment. And I would also like to  
13 compliment the staff, too. They did an outstanding job  
14 when they prepared SECY-15-0094. It is an outstanding  
15 report. I think it was very well thought through.

16 The SECY paper also discusses and  
17 potentially allows for disposal of waste based on the  
18 hazards that is posed to public health via a  
19 site-specific analysis. And it also could potentially  
20 provide a pathway for orphan disused sealed sources, as  
21 specified in the Energy Policy Act of 2005.

22 It also potentially provides a pathway for  
23 other orphaned type waste to help accelerate the cleanup  
24 of certain DOE sites. For example, those bearing  
25 transuranic waste. Next slide.

26 WCS agrees with the staff that Option 2 is

1       preferable, is consistent with historical NRC  
2       statements expressing a desire to retain the option of  
3       allowing Agreement States to regulate the disposal of  
4       greater than Class-C waste.

5               Texas also has extensive knowledge of the  
6       WCS facilities that would allow greater regulatory  
7       flexibility. The actual license that we submitted, it  
8       was reviewed for about five years before it was issued  
9       in 2009. And since that time, additional experiences  
10      have been acquired over the site with various amendment  
11      requests. For example, the major amendment that would  
12      allow the disposal of large quantities of depleted  
13      uranium.

14             Texas could also request that the NRC  
15      approve a proposal to license the disposal of greater  
16      than Class-C waste, pursuant to Part 61.55.

17             The NRC's regulatory oversight could also  
18      be provided through the Agreement States Integrated  
19      Materials Performance and Evaluation Program. Next  
20      slide.

21             Option 2. It would also establish a  
22      clear-cut federal and state licensing pathway for the  
23      disposal of greater than Class-C waste. And it also  
24      avoids having to construct a new cell for the disposal  
25      of commercial GTCC that would be licensed by the NRC.  
26      It is one thing to amend your license to take additional

1 waste after you have a license but it is a completely  
2 matter to prepare an application and go through the  
3 review process. When you submit a license application,  
4 as you know, an environmental impact statement is  
5 prepared, it is resource intensive and we think Option  
6 2 is the preferred alternative.

7 A separate rulemaking, we agree, is needed  
8 to ensure that waste that contains certain  
9 alpha-emitting transuranic radionuclides at  
10 concentrations exceeding 100 nanocuries per gram, that  
11 it is not orphaned.

12 We believe Option 2 is consistent with the  
13 framework, more closely aligned to ensuring that waste  
14 is disposed of based on the risk, as opposed to its  
15 origins or statutory definitions.

16 For example, certain transuranic waste  
17 that has concentrations of 99 nanocuries per gram is  
18 safer disposal in a near-surface disposal facility.  
19 However, if that same waste stream has concentrations  
20 of 101, then it is not under the current framework.

21 WCS did submit a petition for rulemaking  
22 that we have unanimously approved by the TCEQ  
23 commissioners on September the 10th but some  
24 clarification is really needed. I think the  
25 commissioners' actions started an important  
26 conversation and it directed the staff to reach out to

1 the NRC to clarify its regulatory responsibilities. It  
2 did not approve any specific changes to the exact  
3 regulations at that time.

4 Our petition, what we intended it to  
5 accomplish, we intend to at least address the issues  
6 that there were certain Class C dilemmas that are in the  
7 regulations that would need to be removed and that is  
8 really what the petition focused on.

9 The petition also helped to better align  
10 the Texas regulations in a manner more consistent with  
11 state and federal statutes and regulations.

12 One of the key provisions in the Texas  
13 Radiation Control Act, they define what is called  
14 federal facility waste. And federal facility waste has  
15 to be disposed of in our federal waste disposal  
16 facility. And federal facility waste is that waste  
17 which is the responsibility of the federal government,  
18 as defined in the Low-Level Waste Policy Act Amendments  
19 of 1985. And as such, the federal government would be  
20 responsible for disposing of all DOE-owned or  
21 -generated low-level waste and commercial greater than  
22 Class-C waste at our federal waste disposal facility.  
23 Next slide.

24 What you see here is an aerial photograph  
25 of the site. The large facility in the center is our  
26 federal waste disposal facility. Again, commercial

1 and DOE-owned or -generated greater than Class-C waste  
2 can only be allowed to be disposed of in our FWF. It  
3 would not be allowed to be disposed of at the compact  
4 facility.

5 It is also important to note that the  
6 Department of Energy is responsible for taking title of  
7 the FWF after post-closure. That was mandated by Texas  
8 statute and it required an agreement with the Department  
9 of Energy as a requirement of our license. Next slide.

10 What I wanted to do here is focus on the sort  
11 of the technical basis that established the Class-C  
12 limits from the start. Now the NRC established the  
13 Class-C limits in the initial Part 61 rulemaking, based  
14 on certain scenarios for protecting the inadvertent  
15 intruder, many of those initial assumptions that don't  
16 hold true today. For example, the scenarios that  
17 defined the Class-C limits, it was based on an  
18 agricultural resident scenario that relied on water for  
19 irrigation and drinking water. It was also limited to  
20 disposals or evaluated for disposal facilities in a  
21 humid environment. It required disposal of Class-C  
22 waste at depths of five meters below grade or with  
23 intruder barriers designed to last at least 500 years.  
24 Waste that exceeded the Class-C limits, they were  
25 considered not generally suitable for near-surface  
26 disposal back in 1981. Next slide.

1                   I think when you look at the slide, just at  
2           face value, you could see that the Barnwell facility was  
3           opened in 1969, I could see how there could be questions  
4           raised about what did you dispose of greater than  
5           Class-C waste under those scenarios I just described at  
6           the Barnwell facility. However, a lot has happened  
7           since 1981. The industry has matured considerably.  
8           If you look at our slide at the bottom that pictures our  
9           facility, we believe that waste that wasn't suitable  
10          for near-surface disposal back in the '80s could be  
11          demonstrated to be safe today.

12                   For example, if you dispose of the waste at  
13          much deeper depths, if you had multiple intrusion  
14          barriers, if you located the facility in an area that  
15          has minimal rainfall, high rates of evapotranspiration  
16          and lack of potable water sources.

17                   The point being, the historical scenarios  
18          do not reflect the practices today of a modern disposal  
19          facility, especially one located like WCS in an arid  
20          environment. Next slide.

21                   The DOE may select a commercial entity as  
22          one of its preferred alternatives, as part of their  
23          environmental impact statement. The draft  
24          environmental impact statement that did evaluate the  
25          disposals at an enhanced near-surface disposal vault  
26          facility very similar to the design of the federal waste



1 disposal facility. The slide at the bottom of the page,  
2 this is a depiction of what a near-surface vault  
3 facility would look like.

4 The characteristics or the attributes of  
5 that facility would include more barriers, deeper depth  
6 of disposal, and enhanced waste packaging.

7 The DOE's Final Environmental Impact  
8 Statement is supposed to be issued, hopefully, by the  
9 end of this year. Next slide.

10 Site characteristics of the WCS facility,  
11 we can stack these containers, as you can see on the  
12 bottom, they are stacked on what is called modular  
13 concrete canisters. We can stack those seven-high.  
14 But all the waste is disposed of in impermeable clays,  
15 about 600 to 800 feet thick. There are more or about  
16 the same impermeability as concrete. It is also far  
17 removed from any water tables. It is about 600 to 1,000  
18 feet below grade, which you encounter any sort of water  
19 but it is also not potable.

20 Our site is an arid environment. We  
21 receive less than 15 inches of rainfall a year and a  
22 potential to evapotranspire more than six inches of  
23 water per year. Next slide.

24 This has to do with enhanced waste  
25 packaging. One of the things that makes our facility  
26 very unique is we make our own modular concrete

1        canisters for some of the Class-A waste, it was  
2        high-dose rate, and all the Class-B and C waste is placed  
3        into these MCCs. It is grouted in place. But sometimes  
4        we have to make specialty MCCs such as high-density MCCs  
5        that we have used for irradiated hardware. Irradiated  
6        hardware can have very high dose rates. These  
7        containers are probably two-feet thick. They also have  
8        a steel insert. It allows us, today, to handle pretty  
9        hot activated metals and we dispose of those today at  
10       our facility.

11                These MCCs, they weigh up to about 100,000  
12       pounds and they are ten-feet in height. They are very  
13       intruder-resistant and that also reduces radiation  
14       levels and impedes the mobility of radionuclides.  
15       Again, as I said, we can stack these seven-high in our  
16       FWF and the disposal depths are greater than or it is  
17       possible, more than 30 meters. Thirty meters is key  
18       because that is the definition for a near-surface  
19       disposal facility. So, a portion of our facilities  
20       waste can be disposed of at even deeper depths. Next  
21       slide.

22                In conclusion, again, WCS commends the NRC,  
23       the Texas Commission on Environmental Quality and the  
24       Department of Energy for their leadership in moving  
25       forward on this very important topic. We think it could  
26       provide a disposal pathway for orphaned disused sealed

1 sources, as envisioned under the Energy Policy Act of  
2 2005, as well as helping with the decommissioning at  
3 certain DOE sites that would need to be addressed by the  
4 transuranic waste rulemaking.

5 Waste that is not suitable for near-surface  
6 disposal in the 1980s maybe suitable for disposal in  
7 an enhanced near surface disposal facility like WCS.  
8 And again, we think Option 2 is the preferred  
9 alternative.

10 And that is the conclusion of our  
11 presentation. Thank you for your time.

12 CHAIRMAN BURNS: Thank you, Mr. Kirk. Dr.  
13 Makhijani.

14 DR. MAKHIJANI: Thank you, Mr. Chairman,  
15 Commissioners.

16 In the past I have once been very gratified  
17 that the Commission did agree with one of my many  
18 interventions regarding large amounts of depleted  
19 uranium. And I know that part of this proceeding is at  
20 least due to that Commission decision that large amounts  
21 of depleted uranium weren't automatically Class-A based  
22 on past rulemaking.

23 Since that time, however, I have been very  
24 disappointed in not only in what has been published but  
25 in the systematic setting aside of sound science, sound  
26 advice, without any serious scientific or technical

1 reasons being given. So, I am very glad you are in  
2 data-gathering mode and I hope that -- I don't expect  
3 that everything I say will be accepted but if it is, or  
4 it is not, that there will be sound reasons forthcoming  
5 for that from you and your office. So, thank you very  
6 much in anticipation for that.

7 Overview slide, please, second slide. So,  
8 I will make a few points. One in regard to the idea that  
9 you can do 10,000 year modeling for near-surface  
10 disposal, which is a large part of the basis for the  
11 discussion that you can dispose of GTCC waste in  
12 near-surface disposal.

13 I will talk about 61.55 and how it should  
14 be tightened. I will talk about 61.41 and the dose  
15 limits that are proposed in the new rule, which would  
16 apply to GTCC disposal if it is disposed of in  
17 near-surface disposal. I think my bottom line is that  
18 GTCC and GTCC-like waste that the DOE is considering,  
19 along with quite a large part of what is now called  
20 Class-C waste or equivalent Class-C waste in the DOE  
21 should be disposed of in deep geologic disposal and not  
22 in near-surface disposal.

23 The original intent of GTCC in 10 CFR 61.55  
24 was sound but it was vague. And it should be tightened  
25 and made mandatory.

26 So, that will be the thrust of my remarks.

1                   A few years ago, I think in 2009 -- next  
2                   slide -- an NRC-invited geochemist Peter Burns said the  
3                   following. And this is in a transcript of that  
4                   briefing. I was particularly amused -- quote, I was  
5                   particularly amused by the climatic divisions, none of  
6                   which can be relied on, even perhaps at 1,000 but  
7                   certainly not in 10,000 or 100,000 years. As an  
8                   example, I am a geoscientist. So, I have this rare  
9                   ability to see into the far distant past. I know, for  
10                  example, that Death Valley was filled with about 1,000  
11                  feet of water 10,000 years ago. And that tells you how  
12                  much the climate can change in the arid regions. And  
13                  that is about what we are doing to the climate. The  
14                  proposed rules have ignored completely the specifics of  
15                  what we are doing to the climate. It ignored completely  
16                  this advice from Dr. Burns. No computer model can fix  
17                  this uncertainty that Death Valley was under 1,000 feet  
18                  of water. What is going to happen to the WCS site in  
19                  Texas in 10,000 years? Is it going to remain arid?  
20                  What is going to happen to the water tables? This is  
21                  unknown to anybody at this table and unlikely to be known  
22                  to anybody at this table.

23                 So, 10,000 years, my first point, is a  
24                 completely unsuitable time frame for near-surface  
25                 disposal. It is difficult enough for deep geologic  
26                 disposal but should be ruled out completely for

1 near-surface disposal.

2                   So, what should be done? I have a complex  
3 set of suggestions that go together. I believe your  
4 100-year institutional rule is good, 500-year barrier  
5 is also good. This is time that humanity has some  
6 experience with, unlike 10,000 years. Even the  
7 Catholic church has been around for a small fraction of  
8 that time.

9                   Now, one can say that radionuclides that  
10 decay substantially within 500 years, like cesium-137,  
11 strontium-90, and so on, one can calculate their doses  
12 and their migration within that kind of time frame and  
13 arrive at some reasonable idea of future impact.

14                   For longer radionuclides and radionuclides  
15 that build up like depleted uranium, recycled uranium,  
16 I have suggested that a kind of Gedanken experiment be  
17 done. Were Einstein in charge, he might do that. I  
18 suggest that the peak radionuclide inventory be  
19 considered to be in the water and dose evaluated. And  
20 that kind of procedure should be used to set curie limits  
21 of what can be disposed of in shallow land burial. So,  
22 in addition to concentration limits, I think curie  
23 limits are required. I believe, in line with your  
24 institutional control period, that a long-lived  
25 radionuclide should be defined as one with a half-life  
26 of greater than ten years. So, all of these suggestions

1 go together with a period of performance being defined  
2 as 500 years but with very strict curie limits being  
3 placed and obviously, you would rule out a long-lived  
4 radionuclides and large quantities of depleted uranium.

5 Specifically, I would remove the word  
6 transuranic from Table 1 in 10 CFR 61.55. That would  
7 solve a lot of problems. It would include all the  
8 uranium isotopes of alpha-emitting isotopes. It would  
9 include others, too.

10 There are a number of specifics. I am not  
11 going to go through them. Next slide, yes -- no. Go  
12 back to the previous slide. Next slide. I think you  
13 skipped one. It doesn't matter.

14 There is one very important point I want to  
15 make in regard to 10 CFR 61.41. It is said that you are  
16 eliminating organ doses and going to equivalent doses  
17 because you're modernizing the science. This is  
18 completely false. It is a disingenuous and sophist  
19 argument. The basis of internal dosimetry remains  
20 organ doses. To calculate equivalent doses, you need  
21 organ weighting factors. Organ weighting factors  
22 average men, women, children. They are rather  
23 arbitrary. Today, gonads are important. Tomorrow,  
24 breasts are more important. So, you don't need this  
25 mediating factor. I suggest that 10 CFR 61.41, in order  
26 to modernize the science, go to committed organ doses

1       alone and limit them to 25 millirem and include a  
2       sublimit for drinking water and incorporate the  
3       drinking water rule.

4               I do think that the NRC should tell the  
5       public why modernizing the science requires the  
6       inclusion of weighting factors and elimination of organ  
7       doses, when organ doses remain the basis of modern  
8       internal dosimetry. In fact, the government's entire  
9       compensation program of nuclear weapons workers worth  
10      billions of dollars is based entirely on organ doses and  
11      the cancer risk is not based on the equivalent dose.  
12      So, one arm of the government is doing something that  
13      would relax standards in relation to actinides and  
14      strontium-90, sometimes by an order of magnitude or  
15      more. This, I think, is completely unacceptable. I  
16      have made this point before and never received even the  
17      suggestion of a satisfactory answer why organ doses are  
18      not the basis of modern internal dosimetry. They are  
19      in FGR-13. ICRP-103 has said that individual doses  
20      should not be calculated on equivalent dose basis and  
21      yet, the NRC and the EPA is proceeding along these lines.

22              I suggest I have given you specific  
23      language for -- I won't read it, since I don't have a  
24      lot of time -- for 10 CFR 61.41. But basically, organ  
25      doses should be limited to 25 millirem and incorporate  
26      drinking water rules.



1                   I would like to make a point about an  
2 intruder. I did go and look up the definition of  
3 intruder in the dictionary, a number of dictionaries.  
4 Intruder means somebody who is there in an unauthorized  
5 basis, usually with criminal intent. When you have no  
6 more site control, no more barriers, there are no  
7 intruders. There are only members of the public. You  
8 are calling people -- after your barriers go down, you  
9 are calling people who go onto the site as intruders,  
10 even if they may be farmers. You are calling people in  
11 their own country intruders in their own country because  
12 you have no more site control. That is on the face of  
13 it, rather ridiculous, I would say.

14                   Intruders within 500 years? Yes. So, if  
15 you want to say intruders may get a higher dose with 500  
16 years, okay. But after 500 years, they are only members  
17 of the public and 61.41 should apply, today's 61.41  
18 titled in the manner I have suggested.

19                   The implication that what I have said for  
20 GTCC waste are that basically you need deep geologic  
21 disposal with a rule like that for deep geologic  
22 disposal. We have 40 CFR 191. It would need to be  
23 modified somewhat to be based on organ doses. I have  
24 given you a catalogue for my comments on the GTCC Draft  
25 EIS, which contains there are a lot of other wastes like  
26 GTCC. And, basically, I think the DOE wastes that are

1       like that and NRC wastes should be managed together,  
2       possibly in one separate repository that should be  
3       considered. It is quite important to do that, both for  
4       economic and environmental reasons. We don't want this  
5       stuff to be mixed up with spent fuel. It would be very  
6       expensive and spent fuel is kind of stuck.

7               So, I have, I think, given you a fairly  
8       coherent body of recommendations, at least in my view,  
9       and if it is not coherent to you, I would certainly like  
10      to hear from you so I may correct myself in public.

11             CHAIRMAN BURNS: Thank you, Dr. Makhijani.

12             We will open now for questions and  
13      Commissioner Ostendorff will start today.

14             COMMISSIONER OSTENDORFF: Thank you,  
15      Chairman. Thank you all for being here. As others  
16      have said on the Commission, this is a complex set of  
17      topics, a lot of moving parts, a lot of interfaces with  
18      various technical, and policy, and, perhaps, legal  
19      issues. I will steer clear of legal issues in my  
20      comment and questions today. I will stay with  
21      technical and policy-level questions for this group.

22             Let me start out with Ms. Schleuter. I  
23      will ask you a question and I will also ask others if  
24      they want to respond or provide any perspective.

25             With respect to the State of Texas having  
26      the authority under Option 2, if the Commission decides

1       that, you mentioned -- you discussed the benefits of  
2       having Texas proceed down the Option 2 path but you also  
3       briefly mentioned there could be, maybe I implied it  
4       from your comments, some challenges. But are there  
5       challenges if the Commission decides to have Texas  
6       license the facility?

7                   MS. SCHLUETER: At this time, I am not  
8       aware of specific challenges. But remember, I am  
9       basically operating off of the information that is in  
10      the SECY paper. So, I trust that there has been some  
11      dialogue between NRC, DOE, State of Texas and so forth,  
12      that we haven't been privy to. This is part of the  
13      reason that we suggest a public stakeholder meeting be  
14      held at the appropriate time. No rush, obviously.

15                   And I trust that there are discussions that  
16      have taken place between yourself and, obviously your  
17      Office of the General Counsel, which is not going to be  
18      public.

19                   COMMISSIONER OSTENDORFF: Yes, I am not  
20      talking about legal challenges.

21                   MS. SCHLUETER: Right, technically, no.

22                   COMMISSIONER OSTENDORFF: I'm putting  
23      that to the side.

24                   MS. SCHLUETER: Yes, technically, I would  
25      say no, I am not aware of any issues that would be  
26      specific technical challenges, if you will.

1 COMMISSIONER OSTENDORFF: Does any other  
2 member of the panel want to comment on that or have any  
3 thoughts?

4 DR. MAKHIJANI: Yes, when we commented  
5 during the licensing of the enrichment facility in New  
6 Mexico, we did a specific calculation in regard to the  
7 WCS site in Texas, for which I have never received an  
8 adequate response from anyone, WCS, or the NRC, or the  
9 licensing board.

10 We showed that very small changes in the  
11 assumptions about the erosion rate --

12 COMMISSIONER OSTENDORFF: No, I want to  
13 make sure -- my question is not necessarily a technical  
14 question for geology but as far as the challenge for the  
15 State of Texas, as opposed to the NRC conducting the  
16 licensing. I just wanted to make sure that --

17 DR. MAKHIJANI: Well, let me start at the  
18 end of my point, then. During my time in which I  
19 studied, intervened in that case, and subsequently in  
20 the intervention that I made here, and to the State of  
21 Utah and also in Texas, not to the State of Texas, I found  
22 that the NRC oversight of its Agreement States was  
23 sorely lacking. I testified under oath at that time,  
24 in 2004, I think, that one of the documents that had been  
25 used to license the site in Utah contained numbers that  
26 would dispose of uranium for greater than the weight of

1 the earth. I complained about this a number of times.  
2 I filed an official intervention through a local group  
3 to DRC. I spoke about it personally with  
4 commissioners, including the former chairman. And  
5 have been dismissed. The document is no longer in use.  
6 How did it come to be in use? How did it come -- how  
7 is it that the state could have licensed a site based  
8 on a document that contained egregious and  
9 scientifically incredible results?

10 And even though I raised it here and in  
11 Utah, I found that on neither side, neither in the state  
12 nor the federal level, was there any serious  
13 investigation done of how this came to be.

14 So, I think leaving it even more to the  
15 state for GTCC waste is entirely inappropriate.

16 COMMISSIONER OSTENDORFF: Thank you for  
17 the response. Do others want to respond to this  
18 question?

19 MR. KIRK: Yes, my only comment would be I  
20 thought this through quite a bit and my thought would  
21 be if we had to build a disposal facility just for  
22 commercial or comingled commercial waste, GTCC, and we  
23 had to build that facility just for it, now you would  
24 need to dispose of it deeply in order to protect the  
25 intruder. And our thought would be that the NRC would  
26 license this disposal facility, you would place the

1 waste as deep down as you could in your disposal facility  
2 maybe at depths greater than 30 meters, then you would  
3 have a vast open space. And what else could you put in  
4 that facility? Would you put in just Class-A, B, and  
5 C waste that an Agreement State would then regulate?  
6 And you would sort of set yourself up into a scenario  
7 in which the NRC licensed a disposal of GTCC but then  
8 the Agreement States also have responsibilities for  
9 Class A, B, and C. And let's give them the assumptions  
10 of how we dispose of the waste today.

11 So, that was a lot of my point about  
12 efficiencies in regulatory space.

13 COMMISSIONER OSTENDORFF: So, just to make  
14 sure that I understand your point there. If the NRC,  
15 under Option 1, would license such a facility, would  
16 that necessarily require a separate physical construct  
17 facility within your facility to handle this waste?

18 MR. KIRK: My thoughts are right where I  
19 stand today, I think you would. I don't know how else  
20 you would have it licensed so you only dispose of greater  
21 than Class-C waste under a Part 61 license that the NRC  
22 had. And then yet you had other waste streams that you  
23 have all already disposed of at our existing facilities.  
24 And I don't quite get how that would work.

25 COMMISSIONER OSTENDORFF: Okay, so then  
26 let me stay with you, Mr. Kirk, just for a moment there.

1       Aside from that example that you have provided, what  
2       other impacts on Waste Control Specialists does the  
3       commission decision on the SECY paper have for your  
4       organization, Option 1 or Option 2? Now, you have given  
5       us one example. Are there other examples you would want  
6       to articulate to the commission?

7                   MR. KIRK: Well, the other point I would  
8       make is that when it comes to the volumes of greater than  
9       Class-C waste, it is very small volumes. It is high  
10      activity but small volumes. So, the question is, would  
11      we take such an effort only to dispose of commercial or  
12      comingled GTCC waste in a separate facility? Would  
13      that be worth it just for such a small volume of waste?

14                  COMMISSIONER OSTENDORFF: So just from a  
15      business standpoint. Is that what you are saying?

16                  MR. KIRK: And also just the efforts of  
17      going through the licensing process. You know you have  
18      to prepare your license application, you submit it and  
19      an environmental impact statement is performed. They  
20      are expensive. And then you go through the licensing  
21      review process that takes you years to complete.  
22      Whereas, if we could amend our existing license today  
23      and where the NRC and an Agreement State could  
24      collaborate on the technical basis and jointly sort of  
25      review the performance assessment, I think that is a  
26      much more efficient way to handle things but it also

1 ensures that the NRC has their roles and  
2 responsibilities to look at the safety basis that goes  
3 behind those decisions.

4 COMMISSIONER OSTENDORFF: Okay. I want  
5 to provide -- I'm going to stop right there just for a  
6 moment. Do others want to respond to Mr. Kirk's comment  
7 there? Because I think this is a very key part of the  
8 Commission understanding of what is before us here in  
9 the SECY paper.

10 DR. MAKHIJANI: Briefly, Commissioner, I  
11 think that both Option 1 and Option 2 should be rejected,  
12 obviously, because I am for deep disposal of GTCC and  
13 other waste like it. Thank you.

14 COMMISSIONER OSTENDORFF: Other comments  
15 on Mr. Kirk's response or Dr. Makhijani's response?  
16 Okay.

17 MR. KALINOWSKI: I am definitely not a  
18 policy or a political-type person. I think if there is  
19 a technical basis for being able to safely dispose of  
20 the material, and regardless of the facility, then it  
21 should be implemented and whatever policy mechanism you  
22 need to employ to let it be done efficiently should be  
23 used.

24 COMMISSIONER OSTENDORFF: Okay, let me ask  
25 Ms. Schleuter this comment because I think the notion  
26 of a carved-out greater than Class-C waste facility



1       within a broader facility that Mr. Kirk has raised is  
2       important for us to understand the implications of that.  
3       So, do you have anything further you want to say, other  
4       perspectives from industry on that?

5                   MS. SCHLUETER:  No.  I think just to build  
6       on what has been said, I mean as you know, under Option  
7       1 or 2, which the staff has developed, I mean either way,  
8       Waste Control Specialists site in Texas is the site  
9       which is being considered for permanent disposal of the  
10      waste.  So, it is really just then who regulates it.

11                   And the staff has made a case, I think, in  
12      the paper very well that having the state continue to  
13      regulate all aspects of waste disposal in Andrews County  
14      is the most efficient way to go, for a whole host of  
15      reasons.  The staff clearly points out that for the NRC  
16      to take on that role, you are talking about a significant  
17      investment of resources.  That is pretty difficult to  
18      justify, from my perspective, when Texas has the program  
19      in place, technical expertise.  NRC has an oversight  
20      role.  They are already overseeing the program, they  
21      will continue to do so.  So, why would the NRC staff then  
22      take on that huge burden of a steep learning curve for  
23      becoming familiar with a portion, again, a portion of  
24      the site and having two regulators on-site, which could  
25      confusing for any licensee?

26                   So, in our mind, it was just based on the

1 paper alone, a pretty clear, obvious best choice in  
2 Option 2, from a strictly resource perspective and  
3 gaining and building on the experience of the Texas  
4 regulator in this case.

5 COMMISSIONER OSTENDORFF: Okay, my time is  
6 up. Thank you all. Thank you, Chairman.

7 CHAIRMAN BURNS: Thank you, Commissioner.  
8 Commissioner Baran.

9 COMMISSIONER BARAN: Thanks. Thank you  
10 all for your presentations. It has been a good  
11 discussion, so far.

12 Mr. Kirk, I wanted to follow up on your  
13 response to Commissioner Ostendorff's question, which  
14 I thought was a very good one, just the basic question  
15 about kind of the reasons why, from your point of view,  
16 from WCS's point of view, would make more sense for Texas  
17 to license a GTCC waste cell versus NRC doing that.

18 You expressed your concern that if NRC is  
19 the licensing agency, then WCS would need a separate NRC  
20 license GTCC disposal cell, instead of being able to  
21 dispose of GTCC waste in its existing or WCS's existing  
22 federal waste disposal facility cell.

23 Do you think there is a clear relationship  
24 between who does the licensing, which agency does the  
25 licensing and whether WCS will need a separate GTCC  
26 cell? I mean couldn't NRC decide that disposal in the

1 existing cell would be adequate and couldn't Texas  
2 decide that disposal in the existing cell wouldn't be  
3 adequate?

4 MR. KIRK: Yes, I think they could do that.  
5 And my thought is we don't know what the technical  
6 requirements are now, what the NRC is thinking from a  
7 technical standpoint. So, it is hard to envision all  
8 of the different scenarios.

9 Where I stand today is my thought was we  
10 would have a separate disposal facility just for the  
11 GTCC and it would be a very small volume and we would  
12 not want to comingle the other types of waste that we  
13 receive from the Department of Energy at our federal  
14 waste disposal facility. That was my thought. But we  
15 haven't seen the technical requirements so, it is hard  
16 to answer that question.

17 I mean I guess if what you are getting at  
18 is if you place all the GTCC waste that you have at the  
19 base of your disposal facility, and that is with the NRC  
20 license, I guess that would have somewhat of a footprint  
21 on it but other waste would go on top of it. There would  
22 be other waste that would be adjacent to it that the  
23 State of Texas would also have been regulated and  
24 authorized its disposal. So, for just the clear lines  
25 of demarcation, my thought would be we would have a  
26 single cell. But now again, these are new concepts that

1 we are just now starting to deliberate and understand  
2 ourselves.

3 COMMISSIONER BARAN: Yes, it is  
4 preliminary so it is hard to know exactly how it would  
5 look.

6 MR. KIRK: Exactly.

7 COMMISSIONER BARAN: So, I take it that one  
8 concern I am hearing is the idea of having two regulators  
9 at one site and that could be confusing or even two  
10 regulators on one cell and the problems that might  
11 cause.

12 Let me ask kind of a related but coming at  
13 it in a slightly different way, which is are we going  
14 to have problems or is the process going to be  
15 unnecessarily complicated if we have two regulators  
16 involved in the licensing or approval of a GTCC cell?

17 So, NRC regulations, as you know, and  
18 probably everyone on the panel knows, establish a  
19 presumption that GTCC waste will be disposed of in a deep  
20 geologic repository. But the regulations leave open  
21 the door to intermediate depth disposal, if the  
22 Commission approves it. And so, if Texas were to handle  
23 the licensing of a GTCC disposal cell, the Commission,  
24 NRC, would still need to approve any non-repository  
25 proposal.

26 Are you concerned -- and maybe start with

1       you but others on the panel could answer. Are you  
2       concerned that basically this essentially would create  
3       kind of a two-step licensing process that involves two  
4       different agencies; Texas would be the primary  
5       licensing entity but NRC would still have to review  
6       everything to satisfy itself that the alternative being  
7       proposed is an adequate alternative to deep geologic  
8       repository?

9                       MR. KIRK: Let me see if I can answer your  
10       question. My thought is that with Texas, as an  
11       Agreement State and the NRC could work in a  
12       collaborative fashion. NRC could carry out its roles  
13       in licensing the facilities through the vehicle in the  
14       Atomic Energy Act, where Agreement States and NRC can  
15       work together collaboratively for the NRC to carry out  
16       its licensing functions and responsibilities.

17                      So, it was my thought that the NRC would  
18       still carry out a licensing role as part of the review  
19       but Texas would be the licensing authority and it would  
20       be an amendment to our existing license as opposed to  
21       a brand new license that would be set apart from the  
22       existing license that we have with the State of Texas  
23       today.

24                      COMMISSIONER BARAN: Okay and I know it is  
25       not really fair to ask you to outline what you think the  
26       NRC process would be. We would have to figure that out

1       here. But what are you -- you have given us a lot of  
2       thought, obviously, and you are trying to think through  
3       the different possibilities and you talked a little bit  
4       about how you are envisioning what this would look like.

5               If Texas did the licensing but NRC still has  
6       its approval role, at what point in the process do you  
7       think would weigh in or would you expect NRC to weigh  
8       in? I mean would the licensing essentially have to be  
9       complete and then it goes to NRC and NRC says yes, that  
10      looks okay to us, it is not a deep geologic repository  
11      but it is safe. Or does it happen earlier than that?

12             MR. KIRK: My thought would be there would  
13      be early deliberations between Texas and the NRC. But  
14      the role of the NRC, at least I think they would want  
15      to look at is the technical basis that underpins the  
16      decision. Now, can you dispose of GTC and if so, how  
17      much? And that is based on the performance assessment.

18             So, the way I envisioned it, we would submit  
19      a license amendment to the State of Texas, like we do  
20      today. The NRC would have a role in the review of that  
21      performance assessment and the determination of any  
22      limits that would be established. And then once those  
23      limits were established and that process was defined,  
24      the license could be issued by the State of Texas but  
25      it would have been done so in a collaborative fashion  
26      with the NRC as envisioned under the Atomic Energy Act.

1 COMMISSIONER BARAN: Okay, thanks.  
2 That's helpful.

3 Dr. Makhijani, let me ask you. I know you  
4 expressed your view that all GTCC waste should be  
5 disposed of in a deep, geologic repository. If WCS,  
6 though, submits an application for intermediate depth  
7 disposal or, I think, Mr. Kirk called it enhanced,  
8 near-surface disposal, if we or Texas were to get such  
9 an application, do you have a view about whether NRC  
10 should do the licensing or Texas Commission on  
11 Environmental Quality should do the licensing?

12 DR. MAKHIJANI: Well, let me agree with Mr.  
13 Kirk on one thing, what he just said. You need to decide  
14 early whether there is a technical basis for this. If  
15 you take Dr. Burns seriously and just the one fact that  
16 Death Valley was under 1,000 feet of water 10,000 years  
17 ago, out of the starting gate, there is no technical  
18 basis. That kind of thinking is the foundation of my  
19 recommendation. So, there is no technical basis. NRC  
20 should early rule it out.

21 If you don't rule it out, at least you  
22 should respect Dr. Burns and I would like to find out  
23 what you exactly mean to say to him. With specific  
24 reference to the WCS site, is it going to be under five  
25 feet of water, 50 feet of water, no water? Is it going  
26 to be in howling desert winds that will erode everything

1       away? It is certainly possible. We are being told  
2       extremes of climate.

3               So, I agree. You should decide on the  
4       technical basis. You have been considering it for a  
5       while, though. What I would say is that you haven't  
6       done a very good job. It is that you have ruled out a  
7       lot of very good advice you have already gotten in favor  
8       of expediency. Not you, as the Commission, but  
9       certainly as the staff. Because I know the Commission  
10      with due respect, pardon my saying you, saying  
11      institutionally to the staff, because it has been very  
12      frustrating over a long period of time for two decades  
13      now, actually, more than two decades, I think.

14             And so, I would say yes, consider the  
15      technical basis. I would say if you revisit what the  
16      staff has done and presented to you, it hadn't done a  
17      very good job. So, decide this technical basis before  
18      it gets to the point of whether you are going to license  
19      or Texas is going to license because there isn't a basis  
20      to do it. There isn't a physical basis to it.

21             Mr. Kalinowski said if there is a technical  
22      basis, go ahead. How do you deal with the fact that no  
23      performance assessment can deal with the idea that Death  
24      Valley was under 1,000 feet of water 10,000 years ago,  
25      and we are talking about 10,000 years? I am actually  
26      saying tighten, shorten the period of performance but



1 do it properly.

2 COMMISSIONER BARAN: So your comment, as I  
3 understand it, is largely focused on site conditions and  
4 our ability to predict or not predict what those are  
5 going to be out into the future, which I understand.

6 Talk a little bit about, if you will, Mr.  
7 Kirk's points about features of the facility itself.  
8 Does any of that change your view when he describes  
9 modular concrete canisters and all the specifics of the  
10 facility, do you credit any of that? And does it lead  
11 you to believe that there is any GTCC waste at all that  
12 could be suitable for disposal on a site like that?

13 DR. MAKHIJANI: Well GTCC waste is  
14 generally long-lived. So, I would say yes, what WCS is  
15 doing in terms of the photos that I have seen here and  
16 other things that I have seen described, good for  
17 hundreds of years. So, I didn't say exclude all  
18 strontium-90 from near-surface disposal. I didn't say  
19 that. Quite high concentrations already allowed under  
20 Class-C. They are not nontrivial concentrations,  
21 thousands of nanocuries per gram, if I remember  
22 correctly.

23 So, I don't object to that because I do see  
24 a substantial of investment and care is taken to make  
25 those canisters and it is better in an arid environment.  
26 The experience with wet environments has been very bad,

1       generally. And so this is an improvement. But we  
2       cannot use this improvement of what we see today to  
3       negate the fact that these are very long-lived wastes  
4       and, basically, we are benefitting and we are dumping  
5       on our children -- well, children's children, future  
6       generations. And no structure that looks very robust  
7       today, if you can't even model or say what the conditions  
8       are going to be -- do we know how howling the winds are  
9       going to be in Texas and how much erosion there is going  
10      to be, followed by extreme rainfall and storms and  
11      hurricanes?

12                   So, if we can't say that, how can we say  
13      whether these things are robust or not if we can't define  
14      the conditions under which we are requiring them to be  
15      robust? In a few hundred years, okay.

16                   COMMISSIONER BARAN: Great, thank you.

17                   CHAIRMAN BURNS: Thank you, Commissioner.  
18      Again, I thank everyone for their presentations. I  
19      think as Commissioner Svinicki said at the opening, I  
20      think this is a good opportunity for us to sort of start  
21      our deliberation and evaluation on this area and I will  
22      be the first one to confess for me that I am hardly at  
23      the deep geologic level in terms of my understanding of  
24      and barely near-surface. I will try but it is helpful  
25      to hear from all of you this morning.

26                   I just have a question for Ms. Schleuter.

1       What I heard in your presentation that there are some  
2       other moving parts related to this issue beyond this,  
3       the question of whether the Option 1 or Option 2 that  
4       is in the staff paper. And if you could elaborate more.  
5       I think you were talking about in terms of the pending  
6       Part 61 rule, some of the questions on the waste  
7       classification tables. But could you tell me a little  
8       bit more about that?

9                   MS. SCHLUETER: Yes, actually, I am  
10       beginning to think that the use of the word challenge  
11       in my script was a poor choice.

12                   There is always moving parts and various  
13       pieces of the puzzle. And I think that the community  
14       at large, whether it is the industry, the NRC, the site  
15       operators or what have you, we are just always trying  
16       to look at that complete mosaic and to make sure that  
17       as decisions are made today, that we are thinking  
18       carefully about the implications in the future.

19                   And so the waste classification table is  
20       just an example where within the context of Part 61,  
21       whether you do the limited rule or the large  
22       comprehensive rule, there has been this issue on the  
23       table from time to time as to whether the waste  
24       classification table should change and if so, how should  
25       they change. Should they incorporate more up-to-date  
26       science and so forth. And that is fine. It is just

1 another moving part and a factor that I trust the staff,  
2 as well as Texas, has probably given that some thought.  
3 They have got a lot of comments on it in the context of  
4 the earlier rule. It is not a critical path forward.  
5 It is not a bump in the road that cannot be overcome.  
6 It is simply making sure that the staff has thought  
7 through if you do go in the future and make decisions  
8 today and then change those classification tables,  
9 let's just make sure that we have thought through maybe  
10 what the impacts of that rulemaking would do, so that  
11 we don't have unintended consequences and have some sort  
12 of whiplash effect with regard to the way that waste is  
13 characterized and categorized under Part 61. It is an  
14 awareness issue. It is not a critical milestone.

15 CHAIRMAN BURNS: Okay, would anybody else  
16 like to comment?

17 Okay, Mr. Kalinowski, one of the points in  
18 your slides is there is a discussion in terms of when  
19 we look at the potential estimates for the volume of this  
20 type of waste that, as there is consideration in going  
21 into the extended life or, basically, second license  
22 renewal or some power reactors that may -- the volume  
23 may be underestimated, could you elaborate on that for  
24 me?

25 MR. KALINOWSKI: Well, there is two  
26 factors at play with estimating the GTCC waste from the

1       activated metals. On the one hand, as I noted, we tend  
2       to overestimate certain radionuclides, just to be  
3       conservative. On the other hand, there are some issues  
4       out there where plants are looking at extending reactor  
5       life beyond 60 years, which is going to generate some  
6       additional components.

7               The vessel materials, themselves, are  
8       going to reach, essentially, equilibrium. So you  
9       probably aren't going to see volume changes from that  
10      material in itself, but you are going to increase the  
11      amount of material from consumable components and then  
12      also, as I said, there are some new alloys that are being  
13      developed that may increase the amount of GTCC waste,  
14      just because they are actually using quantities of  
15      certain elements that are measurable in the alloy, as  
16      opposed to being a de minimis value.

17             CHAIRMAN BURNS: Okay, thank you.

18             And Mr. Kirk, one thing I would appreciate  
19      if you would elaborate on, you talked about in terms of  
20      where things were in let's say about 1981 or in the  
21      context, I think, the early rules. And so the  
22      assessment basis for determination, you know the  
23      acceptability and that we are at a different place  
24      today. Help me again, in terms of understanding what  
25      are the differences.

26             Are the differences related to the -- I know

1       you showed the picture of a disposal at Barnwell versus  
2       the manner in which your company is managing waste.   So,  
3       I am just trying to understand what are the differences  
4       that help me understand the path today, why that path  
5       might be a better one, in light of what exists in either  
6       existing requirements or existing assumptions might be.

7                   MR. KIRK:   Let me see if I can capture that.  
8       I will start with the waste classification table.  
9       Class-C waste that was defined back in 1981, it has a  
10      bar of such value.   And that was based on a set of  
11      assumptions that went into the Draft Environmental  
12      Impact Statement.   When the Draft Environmental Impact  
13      Statement was developed back in the late 1970s, they  
14      assumed that that facility was located in a human  
15      environment, primarily on the East Coast.   They assumed  
16      that there was a shallow water table that someone could  
17      drink from, that someone could use it to irrigate their  
18      crops.   They assumed some agricultural resident was on  
19      the site itself.   They consumed the food products.  
20      They drank from the water itself.   That was the basis  
21      for how they determined the Class-C limits back in 1981.  
22      If you look at our facility, the Class-C limits wouldn't  
23      be here.   It would be much higher because the  
24      assumptions are completely different.   At our  
25      facility, the waste is disposed of, it could be at very  
26      deep depths.   The only way that someone could actually

1       probably receive an exposure would be to drill through  
2       all of those MCCs. And to my understanding, that would  
3       be a very technical challenge for a driller. So, that  
4       is really not feasible but you could envision that  
5       potentially happening. And we own all the mineral  
6       rights at the facility. So, even assuming that someone  
7       could come there at some point in the future, if they  
8       are drilling for oil, there are some institutional  
9       controls that would also -- that would be abated, if you  
10      assumed that its controls were durable controls.

11               Our water table, it is deep. It is 600 to  
12      800 feet. It is not really -- looking at existing  
13      practices today, people do farm but they farm about ten  
14      miles north of the facility, where they actually  
15      irrigate crops because they use a water source that is  
16      available. There is not a water source available at our  
17      site today that people actually use to irrigate the  
18      crops.

19               The water that we get today is not from an  
20      on-site drinking water well. It is pumped in from  
21      Eunice. It comes from a completely different portion  
22      of the country. So, those exposure pathways that were  
23      evaluated back in 1981 just don't apply at our facility.  
24      Now, you don't have the drinking water source. You  
25      don't have the irrigation source. It would be very hard  
26      for someone to drill through that waste to bring it to

1 the surface. And to me, at least in my mind, that is  
2 the only scenario that one can envision where someone  
3 could be exposed to greater than Class-C waste. And  
4 especially if you put it on the very bottom of the  
5 disposal facility or near the bottom because they would  
6 have to drill through each of those MCCs. As you saw  
7 them, they are very robust. They are dense. It would  
8 be very difficult to drill through those.

9 CHAIRMAN BURNS: Okay, yes, that helps.  
10 But I think from what I understand from your answer, part  
11 of it is looking -- it may be the question of the location  
12 where you are versus if we did out here in Rockville Pike  
13 in terms of the nature of some of the geology or the  
14 meteorology and those types of issues, the question of  
15 the standards and you have it from your perspective, in  
16 terms of looking at how the licensing goes, there is some  
17 advantages from that.

18 MR. KIRK: Yes.

19 CHAIRMAN BURNS: Yes, okay. Dr.  
20 Makhijani, I wanted to touch on one question. I want  
21 to make sure I understood the point you were trying to  
22 make on the question of the intruder versus the member  
23 of the public. And as I say, at one level, I am trying  
24 to understand perhaps the semantic difference and why  
25 it matters, in terms of your comments. Because again,  
26 as you say, often we think of the word intruder in



1       pejorative way. I can think of worse ones of  
2       trespasser, or we could probably go on. But I am trying  
3       to understand in the context of your comment in terms  
4       of the protection that needs to be achieved, what the  
5       importance is from your perspective.

6                   DR. MAKHIJANI: Thank you, Chairman Burns.  
7       Well, as you know, in the proposal, the intruder would  
8       be allowed to get a higher dose than 10 CFR 41(a) or (b),  
9       the proposed (a) or (b), and that would be beyond 500  
10      years. And my point simply is once you, yourself,  
11      have said there are no barriers or institutional  
12      controls, by definition, there cannot be an  
13      unauthorized presence, whatever you want call it. If  
14      you call it intruder, okay.

15                   There can only be intruders when it is  
16      unauthorized. So, while there are barriers and while  
17      there are institutional controls, certainly somebody  
18      who goes onto the site when you are telling them in an  
19      effective way, don't go, you would be hurt, then I think  
20      it is okay to say on the sign, you are going to get a  
21      radiation dose more than a member of the public, stay  
22      out.

23                   But after your signs and barriers are gone,  
24      I don't believe you are in a technical or moral position  
25      to tell anyone that they should get a higher dose than  
26      a member of the public is allowed during the period of

1 operation or post-closure less than 500 years because  
2 everybody is a member of the public. If you admit  
3 somebody can go on and live on the site, that is a member  
4 of the public. That is not an intruder.

5 So, I think the whole concept of intruder,  
6 as proposed in the regulation, is wrong.

7 CHAIRMAN BURNS: Okay, thank you. That  
8 helps.

9 Commissioner Svinicki.

10 COMMISSIONER SVINICKI: Well again, I add  
11 my thanks to each of you for participating in today's  
12 meeting. Again, a lot of ground has been covered but  
13 there is two issues that I think pose some unique  
14 complexities, at least that has been my experience as  
15 a commissioner, I think in both cases, answering the  
16 question of how did we get to where we are today, you  
17 have to look at kind of a complex history of a fabric  
18 of different accretion of knowledge and changes over  
19 time. Low-level waste is one of those areas. Medical  
20 use of nuclear technology, Part 35, that is another one,  
21 at least for, personally, is very complicated. So that  
22 when something arises, you kind of have to fasten your  
23 seatbelt because you are really going to have to pour  
24 into it.

25 I do appreciate some of us are visual.  
26 Visual information helps. So, I do appreciate the

1        photos that were provided of WCS. I would note, though,  
2        as someone who has visited there that I think it is very  
3        hard to get a sense of the scale. I did have an  
4        opportunity five or six years ago to go and stand at the  
5        excavation level of one of the disposal cells and I think  
6        the scale is hard to understand from the photo. But  
7        without opining on some of the practices of disposal  
8        throughout our atomic history in this country, which is  
9        the practices of the past were quite different but when  
10       one visits a modern facility like that, I think  
11       visiting, there is, at least for me, no substitute for  
12       that maybe because I am kind of a visual person.

13                One thing that my colleagues didn't  
14       explore, Ms. Schleuter, and I do appreciate that Ms.  
15       Schleuter and Dr. Makhijani talked about the interfaces  
16       with Part 61 and other things. I think it is very  
17       difficult to discuss these issues. So, one by one, I  
18       think sometimes we stovepipe our thinking and, as an end  
19       result, we don't really look at all dimensions in a way  
20       to help us arrive at the strongest conclusion that we  
21       can.

22                There was some discussion that the industry  
23       tries to minimize the generation of GTCC waste. I would  
24       like to hear a little bit more. I think it was touched  
25       on in passing that is just some of the modern management  
26       practices.

1                   And then my other question was at power  
2   plant sites I visited, it seems some of the GTCC is  
3   stored sometimes on the ISFSI pad, the independent spent  
4   fuel storage installation pad and some of it might be  
5   in the pool, if it is activated components.

6                   Could you talk a little bit more about --  
7   I will limit it because I think that is who we have at  
8   the table for power plant sites -- what are the current  
9   storage methods? And then what are the minimization of  
10  generation methods that are used?

11                  I don't know which of you that is.

12                  MR. KALINOWSKI: I will try and answer the  
13  question. You are correct, some sites will store GTCC  
14  waste, hardware-type materials on their ISFSI pads,  
15  essentially, because there is no place else to put it.

16                  A lot of it will also be stored in the spent  
17  fuel pools. And that is usually the primary, or at  
18  least the initial storage location because when it is  
19  taken out, there is high dose rates. If they have room  
20  in the pool, they just as soon leave it there until they  
21  have some need to move it. The practice of leaving it  
22  in the pool for a certain amount of time also allows  
23  radioactive decay to reduce the dose rates to the point  
24  where it can be more easily handled and placed into dry  
25  storage containers. Dose rates from this material are  
26  primarily driven by cobalt-60, which has a five-year

1 half-life. So, if you wait five years to move it to dry  
2 storage, then you have essentially gotten rid of half  
3 of your radiation problem.

4 Again, the types of materials that they are  
5 storing are going to be limited to some of their more  
6 exposed hardware. In the case of decommissioning  
7 plants, usually it will be the actual core area of the  
8 components, not the fuel but the core structure.

9 COMMISSIONER SVINICKI: Okay, thank you.

10 MR. KALINOWSKI: Have I answered your  
11 question?

12 COMMISSIONER SVINICKI: Yes, thank you.

13 Ms. Schleuter, are there any broad insights  
14 you could give from the more diverse community on the  
15 fuel cycle facilities or other materials generators? I  
16 know some use sealed sources and so there is probably  
17 tremendous diversity and variety in the other  
18 categories.

19 MS. SCHLUETER: Absolutely there is.  
20 There is tremendous diversity based on the inventory  
21 type, the form, whether it is stored in vaults. But I  
22 have been assured by the people that I have reached out  
23 to on this topic that most of the time these or all of  
24 the time they are in controlled and secured areas. It  
25 is just the level of intrusion detection and monitoring  
26 and so forth that is commensurate with the security

1 program that is licensed by either the NRC or the  
2 Agreement State but it does vary tremendously.

3 COMMISSIONER SVINICKI: Okay, thank you.  
4 Thank you, Mr. Chairman.

5 CHAIRMAN BURNS: Thank you. Well thank  
6 you, again, for the presentations.

7 With this, we will take about a five- or  
8 six-minute break. Thank you.

9 (Whereupon, the above-entitled matter went  
10 off the record at 10:20 a.m. and resumed at 10:29 a.m.)

11 CHAIRMAN BURNS: Welcome back, everyone,  
12 and we'll start our second panel when I find my script  
13 here, which I have folded into some of my other papers.

14 Again, we will have our second panel,  
15 representatives of other federal and state agencies, as  
16 well as the NRC staff. And I'll start this morning by  
17 recognizing Mr. Frank Marcinowski, the Deputy Assistant  
18 Secretary for Waste Management in the Office of  
19 Environmental Management at U.S. Department of Energy,  
20 who will begin our second round of presentations.

21 Welcome, Mr. Marcinowski.

22 MR. MARCINOWSKI: Thank you, and thanks  
23 for having me here this morning. We believe this is a  
24 quite important topic that, if you go to my next slide  
25 there, you'll see that the original legislation that  
26 required the Federal Government to take responsibility

1       for this -- site of the disposal facility, happened some  
2       30 years ago.

3               So I think it's time that, you know, we make  
4       some progress on this. And we are working to do that,  
5       and I think we've got a good start here, working with  
6       the NRC staff and with the state of Texas.

7               The second piece of legislation related to  
8       this was the Energy Policy Act of 2005, which had a  
9       somewhat unusual requirement with regard to NEPA  
10      documents and siting facilities, and that was that after  
11      we published our final EIS, we are now required to submit  
12      a report to Congress before the Department can take any  
13      action in actually siting a facility.

14              So we've got to submit the report, wait for  
15      a response from Congress giving us direction, before we  
16      can actually take that final step in selecting a  
17      facility. And we have started some discussions with  
18      Congress to try and understand exactly what does that  
19      mean, and, well, I think it's still to be determined.

20              Next slide, please?

21              And there are some important drivers here,  
22      too. There is the sealed sources issues, you know,  
23      national security concerns. The Department is making  
24      some forward steps right now in developing a moly-99  
25      program, which is important for medical uses. And as  
26      part of that, there is going to be a waste take-back

1 program that the Department is going to have  
2 responsibilities for. Some of those wastes that may be  
3 generated by that are greater-than-Class C waste, or,  
4 you know, greater-than-Class C-like waste that, you  
5 know, the Department would have responsibility for, but  
6 it doesn't fall under NRC regulation.

7 And not to mention just the forward steps  
8 we need in moving our cleanup program forward, because  
9 we are reaching a point at some of our sites where we  
10 have -- you know, we have been able to deal with a lot  
11 of the easier type of waste forms, and now we're getting  
12 to those that are the more difficult ones to deal with,  
13 and at some of our sites that would fall into a category  
14 that, you know, we have identified as GTCC-like. You  
15 know, it's Department-owned material, not under NRC  
16 regulation, but it has, you know, the same  
17 characteristics that greater-than-Class C waste has,  
18 and we have no disposal path for that.

19 Next slide, please.

20 So these are the two types of categories of  
21 waste that we have identified in our EIS, which I just  
22 mentioned the GTCC-like, which is -- or GTCC waste,  
23 which is everything that falls under NRC is commercial  
24 regulated.

25 And then there is the GTCC-like, which is  
26 the Department's -- it's not a formal waste



1 classification, but it has got the same  
2 characteristics. It is a waste form that we wanted to  
3 address as part of this EIS as well.

4 And probably the most prevalent of the  
5 Department's own waste in this category is the  
6 non-defense transuranic waste, primarily at West  
7 Valley, which just doesn't have a disposal path for. I  
8 mean, it's identical to transuranic waste. It's  
9 just -- it's got this label of non-defense on it, and  
10 it -- you know, it's just something we don't have a -- we  
11 cannot legitimately dispose of at the WIPP facility.

12 Next slide, please?

13 And this is the snapshot of the inventory  
14 that we analyzed in the EIS. We estimated, and I think  
15 it was mentioned in the earlier panel, that it was  
16 probably conservatively 12,000 cubic meters of this  
17 waste. And you see the breakdown there that, you know,  
18 most of it is commercially owned or, you know, NRC  
19 regulated, and then there is, you know, a fourth of that  
20 that is DOE owned.

21 We have separated the waste into two waste  
22 groups as well, and this is primarily, you know, the  
23 activated metals, the decommissioning that comes from  
24 nuclear power plants. It's probably not going to  
25 happen for some time, as I think was mentioned in the  
26 last panel. And so, you know, but I think the more

1 immediate concern for us is the -- you know, the  
2 non-defense TRU waste, the sealed sources that  
3 currently don't have a disposal path, any waste that we  
4 are going to, you know, be responsible for from this  
5 take-back program to help with medical isotope issues.  
6 Those are the more immediate concerns as we see them.

7 As I mentioned, West Valley is the primary  
8 concern for us, but, you know, there still are  
9 significant sealed sources, ones that we have been  
10 recovering actually through our offsite recovery  
11 program, that the Department has been collecting  
12 these -- some of these sources, but -- and we have been  
13 trying to find a way to dispose of them, be able to do  
14 that.

15 But the other thing that this would  
16 actually -- if we identified a facility, we are -- the  
17 Department is also -- has the ability to cost recover  
18 from this commercial entity that actually owns these  
19 sources. And up until now, we have not been able to do  
20 that. And so it's a benefit to the taxpayer and the  
21 Federal Government if we are able to make some strides  
22 in this and get some programs in place that allow us to  
23 take that step and establish a cost recovery program as  
24 well.

25 Next slide, please.

26 These are the alternatives that were

1       evaluated as part of the EIS. We looked at the whole  
2       range from no action, geologic repository, boreholes,  
3       trenches, vaults, you know, from shallow land burial to  
4       intermediate disposal to deep geologic disposal.  
5       Broadly, what we found is that for sites that were in  
6       a wetter environment, such as Hanford -- we looked at,  
7       you know, federal facilities as well as some generic  
8       commercial facilities, that Hanford, Idaho, Los Alamos,  
9       Savannah River, sites that were in wetter climate with  
10      a shallow groundwater table, there were potential  
11      impacts that could be seen from those type of  
12      facilities.

13               When we looked at the Nevada test site or  
14      WIPP, there were no impacts that resulted from our  
15      analysis. And then we looked at commercial disposal  
16      facilities, and it was the same thing. In a human  
17      environment, there are potential impacts. In an arid  
18      environment, we didn't see any impacts from the  
19      analysis.

20               Now, it is important to note that we didn't  
21      specifically analyze WCS, so that, you know, when  
22      we -- if this were to move forward, we would have to do  
23      some follow-up NEPA action that would specifically  
24      analyze the WCS facility. But the first step is for us  
25      to move forward and finalize the EIS that we currently  
26      have in hand.

1                   Next slide, please.

2                   And this is just a recap of the analysis.  
3           This is pretty standard for NEPA documents. The range  
4           of things that are evaluated as part of that, as well  
5           as the cumulative impacts. It was done over a  
6           10,000-year period, and I think we covered most of the  
7           other items.

8                   One other item is that for those options  
9           that we looked at in the last slide, we assumed that the  
10          entire waste inventory would go into each of those sites  
11          that were -- or options that were evaluated. So it was  
12          the total waste inventory that was looked at and the  
13          impacts from that.

14                  Next slide, please.

15                  We got significant public comment. As a  
16          result of that, we summarized the comments. I don't  
17          think any were unexpected. And we addressed those in  
18          what will be a response to comment document that will  
19          come out along with that. There are transportation as  
20          well as technical issues. I think we saw some support,  
21          particularly from -- you know, within New Mexico for the  
22          WIPP site. There were the environmentalists who were,  
23          you know, in opposition to that.

24                  But the state and the -- the state regulator  
25          was supportive of that moving forward, and, you know,  
26          we saw a variety of responses depending on, you know,

1       where the site was, you know, and then  
2       the -- particularly, it goes back to the -- you know,  
3       the wet versus the dry environment.

4               And with the folks in the wetter climate  
5       supposing it, and particularly where we had cleanup  
6       sites that were active cleanup sites where we were  
7       supposed to be getting out, they didn't want to put more  
8       curies back into those facilities.

9               Next slide, please.

10              And this is just a list of the factors that  
11       were considered to developing a preferred alternative.  
12       There was no preferred alternative in our draft  
13       document, because I don't think we were ready. There  
14       were too many uncertainties at the time. There were  
15       regulatory uncertainties. There were various factors  
16       that I don't think made it a good time for us to come  
17       out with a preferred alternative.

18              I think in the years since we've put the  
19       draft out, there are -- some of those factors have  
20       cleared up, and so I think we are ready to move forward  
21       with a preferred alternative. I don't -- well, you  
22       know, it hasn't gone through the entire departmental  
23       approval process yet, but from -- you know, I think what  
24       we would like to see is options.

25              I don't think, you know -- I think, you  
26       know, it may look at, you know, one or more facilities

1       that could be used for this. I mean, you've got -- well,  
2       there's transuranic waste there. There's an obvious  
3       location for transuranic waste. But then, you know,  
4       WCS is also a very viable alternative for, you know,  
5       some, if not all, of this waste as well.

6               So I would expect -- or I would predict that  
7       you might see, you know, multiple options identified as  
8       a preferred alternative when we publish that document.

9               Next slide, please.

10              And this is just a process moving forward.  
11       We have prepared the final EIS. We are hoping that in  
12       the next -- hopefully by the end of the year, if not  
13       shortly thereafter, we will publish the final EIS.  
14       Then, I mentioned the report to Congress that we've got  
15       to wait -- got to put together and submit to Congress.  
16       The box has the list of factors that we are supposed to  
17       cover in that.

18              Then, we await congressional action, and  
19       then hopefully we can move forward with a record of  
20       decision.

21              I really can't speculate on timetable  
22       there, because the awaiting congressional action, I  
23       just don't know what that entails at this point.

24              And next slide? And this is my last slide.  
25       So we are currently finalizing the EIS. Like I said,  
26       we're hoping to get that published in the next few

1 months, and that -- I think the preferred alternative  
2 will have options in it. It will be multiple  
3 facilities, is my prediction.

4 That's the end of my presentation.

5 CHAIRMAN BURNS: Well, thanks very much.

6 And next we'll have from Charles Maguire,  
7 the Director of the Radioactive Materials Program at the  
8 Texas Commission on Environmental Quality. Welcome  
9 again, Mr. Maguire.

10 MR. MAGUIRE: Thank you, Chairman,  
11 Commissioners. It is good to be here with you again.

12 I love the opportunity to leave the  
13 102-degree temperatures in Texas and come. It was so  
14 pleasant last night driving from the airport up here,  
15 and the -- I put the windows down in the cab, just so  
16 I could grab the full benefit of it. It's great to be  
17 here.

18 We enjoy the opportunity that we have to  
19 brief the Commission. We think there are some very  
20 important policy issues that are at stake, and today is  
21 no exception. And so it is really an honor to be here.

22 I wanted to compliment NRC staff for their  
23 work on this. I think back in January when we sent our  
24 letter the -- we understood that this was an extremely  
25 complex issue. That may be the all-time  
26 understatement.

1                   Your staff -- we have worked with them  
2                   closely. We consider them colleagues. They treat us  
3                   that same way, and that's a real difference in terms of  
4                   some of the other work that we do with our federal  
5                   partners. But it has been a really good experience for  
6                   us, one where we have learned a lot.

7                   I hope, as you have looked into the  
8                   materials that they have provided you briefing you for  
9                   today's efforts, that you perhaps fully understand why  
10                  we felt the need to send you the letter. We looked at  
11                  this. We did not think it was -- there was a clear  
12                  regulatory pathway, and so we felt like we needed to find  
13                  out in order to be able to respond to the rulemaking  
14                  petition given to us by WCS.

15                  So second slide, please.

16                  So to make a point of what we are asking,  
17                  at the request of TCEQ's commissioners, staff initiated  
18                  discussions with NRC headquarter staff related to  
19                  potential amendments to Texas rules related to the  
20                  disposal of GTCC, GTCC-like, and TRU waste streams,  
21                  separate and commingled.

22                  Specifically, we wanted to know if Texas'  
23                  role as an agreement state for federal statutes, NRC  
24                  rules, and 10 Code of Federal Regulations 61.55, and  
25                  Section 274(b) of the 1954 Atomic Energy Act authorized  
26                  promulgation of state rules that could license GTCC



1 waste streams for disposal.

2 The second question -- and maybe the real  
3 point of the letter -- is could the state of Texas  
4 authorize the disposal of the waste that DOE currently  
5 holds or is required to take possession of that is GTCC,  
6 GTCC-like material, considering that some of that  
7 material exhibits transuranic characteristics and may  
8 currently be commingled.

9 So why are we asking that? And I think  
10 maybe from our discussion it is somewhat obvious, but  
11 we were given a rulemaking petition on September 10,  
12 2014. The TCEQ Commissioners considered that petition  
13 where WCS was requesting a change to TCEQ rules to remove  
14 prohibitions against the disposal of GTCC, GTCC-like,  
15 waste streams, including those commingled with  
16 transuranics at the Texas licensed facilities in  
17 Andrews County.

18 Current Texas law, and in part federal law,  
19 did not establish a clear regulatory pathway with  
20 technical requirements for disposal of all of  
21 those -- GTCC, GTCC-like, and TRU waste streams.

22 The TCEQ Commissioners requested staff to  
23 initiate discussions with NRC and DOE regarding  
24 potential amendments to the Texas rules, including  
25 definitions that would be consistent with federal and  
26 state law and the regulatory role of Agreement States

1 in the disposal of these types of waste.

2 To engage in a well-informed stakeholder  
3 process, which our rulemaking requires, we really have  
4 to have adequate and clear information from our federal  
5 partners to be able to inform stakeholders adequately  
6 if we were to proceed with a rulemaking.

7 So where do we go from here? If there is  
8 an established pathway, and that -- I'm sorry, that  
9 would be the fourth side. If there is a pathway  
10 established that would allow Texas to license the  
11 disposal of those waste streams, subject to conditions  
12 set forth by the NRC, then the next step would be for  
13 Texas to conduct its rulemaking process.

14 Ultimately, the TCEQ Commissioners would  
15 decide if there is to be a change in the Texas rules.  
16 If Texas issues a final rule to remove the current  
17 prohibition, then it is likely that WCS would apply for  
18 a license amendment that would, if approved, allow for  
19 the disposal of these waste streams.

20 The amendment request would have to be  
21 evaluated and complete our public participation process  
22 prior to the approval or issuance before any  
23 greater-than-Class C, greater-than-Class C-like, or  
24 transuranic waste could be disposed of at the WCS  
25 facility.

26 The most critical aspects of our evaluation

1 of that rule will be TCEQ's review of WCS's performance  
2 assessment prepared by WCS, as well as some other  
3 information required by Part 61. Because the  
4 performance assessment and other requirements in Part  
5 61 are vitally important to establishing and ensuring  
6 a consent-based site for disposal -- and I've made the  
7 point before, it's one thing to get the consent to  
8 establish the site. It is quite another to maintain  
9 that consent. And so the performance assessment  
10 approach is going to be vitally important if we are to  
11 proceed with this.

12 We are working closing with NRC staff  
13 already. It is really good for us to have access to them  
14 and make them a part of our process. We have had a lot  
15 of dialogue back and forth about the performance  
16 assessment model that WCS has provided. That model is  
17 in a constant state of improvement and revision.

18 It is probabilistic as well as  
19 deterministic, and so we can look at very adverse  
20 circumstances to look and see how it affects the dose.  
21 And we can then take that sort of in the concept of  
22 defense-in-depth and look at what sort of license  
23 conditions we might need to have to be able to make the  
24 disposal of this work.

25 I want to be clear: we are not at an  
26 endpoint on that yet. We don't even have an application

1       for an amendment to the license. But we are  
2       working -- we are working very closely with NRC staff.  
3       They are extremely capable.

4               While it's 102 degrees in Texas, I don't  
5       expect any of them to want to move to Texas. But maybe  
6       when the snow is eight inches deep up here, maybe I can  
7       make an offer. But the --

8               (Laughter.)

9               We are working with them. It's good.  
10       It's improving the model. WCS has been very responsive  
11       to our request, and so we are trying to move forward with  
12       that.

13              Thank you, and I look forward to your  
14       questions.

15              CHAIRMAN BURNS: Thanks very much, Mr.  
16       Maguire.

17              We will next hear from the NRC staff. We  
18       have with us today Mike Weber, the Deputy Executive  
19       Director for Materials, Waste, Research, State, Tribal,  
20       and Compliance Programs. Cathy Haney is the Director  
21       of the Office of Nuclear Material Safety and Safeguards.  
22       And Larry Camper, who is the Division Director within  
23       the office.

24              So, Mike, I'll let you all begin.

25              MR. WEBER: Good morning, Chairman,  
26       Commissioners. It's a pleasure for the staff to brief

1       you this morning on this rather complex topic, and also  
2       to participate on this panel of government agencies with  
3       our partners, Department of Energy and also with the  
4       great state of Texas.

5               I also want to take this opportunity,  
6       because it's the first public event since yesterday's  
7       announcement, to thank the Commission for promptly and  
8       very effectively appointing Victor McCree as the next  
9       Executive Director for Operations. We look forward to  
10      continuing to work with Victor in his new capacity, and  
11      we will commit to ensure a smooth and effective  
12      transition for that.

13             I want to start by -- and I'm on Slide 3 of  
14      our presentation -- by beyond just discussing the  
15      purpose of today's briefing, which is to brief the  
16      Commission and public on the analysis and  
17      recommendations that the staff has already shared with  
18      the Commission.

19             Just to provide a little historical  
20      context, in the 30 years since the Low Level Radioactive  
21      Waste Policy Amendments Act was passed by Congress, we  
22      have come full circle on this issue. At the time, in  
23      the 1980s, there was a concern that the obligation to  
24      dispose of greater-than-Class C waste would be a high  
25      hurdle or a barrier potentially for states moving  
26      forward with the development of their low level

1 radioactive waste disposal facilities.

2 And so the Act reserved this to the Federal  
3 Government as a federal obligation. Hence, the  
4 Department of Energy's involvement in our briefing  
5 today. But despite that 30 years, and all best  
6 intentions, as reflected in the framework, little  
7 progress has been made on providing for disposal  
8 capacity for greater-than-Class C waste.

9 So now we have a state, the state of Texas,  
10 coming forward and offering to assist the government,  
11 the nation if you will, by posing this question about  
12 the legitimacy of a state regulating the disposal of  
13 greater-than-Class C waste.

14 So with that brief introduction, I will  
15 turn it over to Cathy Haney, and then Cathy onto Larry.

16 MS. HANEY: Thanks, Mike.

17 Good morning, Chairman and Commissioners.  
18 Before I begin my formal remarks, I'd like to make one  
19 note, and that is that this is probably Larry's last  
20 presentation before the Commission from the staff  
21 making a staff presentation. He will be retiring after  
22 34 years of federal service. And while Larry has held  
23 many positions at the Nuclear Regulatory Commission, I  
24 think he will be most remembered for his work in the low  
25 level waste area, in the environmental area, and the  
26 decommissioning and the uranium recovery areas.

1 COMMISSIONER SVINICKI: Whether he wants  
2 to or not, he is going to be remembered for that.

3 (Laughter.)

4 MS. HANEY: And I would add that his  
5 dedication to the NRC mission and public service has  
6 helped to shape national and international policy in all  
7 the areas that I mentioned, as well as specifically what  
8 we will be discussing today.

9 So, Larry, thanks for all your work.

10 MR. CAMPER: Thank you, Cathy.

11 MS. HANEY: So, with that, I'd like to move  
12 to Slide 5, and I'll begin by focusing on the roles and  
13 responsibilities of greater-than-Class C waste. And  
14 in the Low Level Radioactive Waste Policy Amendments Act  
15 of 1985, or as we'll refer to today as the Amendments  
16 Act, Congress addressed all classes of low level  
17 radioactive waste, including that of the  
18 greater-than-Class C.

19 The responsibility for the disposal of  
20 greater-than-Class C waste was assigned to the Federal  
21 Government in the Amendments Act, and the Amendments Act  
22 also notes that NRC license generated GTCC waste, quote,  
23 "Shall be disposed of in a facility licensed by the  
24 Nuclear Regulatory Commission."

25 The Department of Energy has assumed the  
26 responsibility for the disposal of GTCC.

1                   Next slide, please.

2                   Regulating GTCC waste is addressed in Part  
3           61 and Part 72. Part 72 discusses the regulatory  
4           framework for storage of GTCC, whereas Part 61 provides  
5           a limited regulatory pathway but no technical criteria  
6           for the ultimate disposal of GTCC.

7                   The staff is working on several issues  
8           related to GTCC and transuranic waste disposal, and the  
9           first driver for these activities is the work that we  
10          heard about from the Department of Energy with regards  
11          to the environmental impact statement that we expect to  
12          see soon.

13                  The second driver is a Staff Requirements  
14          Memorandum coming out of a briefing with the Commission  
15          in September of 2014 asking for a paper on the regulatory  
16          history and the disposal challenges.

17                  And then the third driver is the January 30,  
18          2015, letter from the state of Texas that we have heard  
19          about.

20                  So with that brief introduction, I would  
21          like to turn the presentation over to Larry.

22                  MR. CAMPER: Thank you, Cathy.

23                  Good morning, Chairman Burns,  
24          Commissioners. It is a pleasure to be with you, of  
25          course. It is bittersweet. And, Cathy, I thank you  
26          for your comments. I want to focus upon the staff



1 activities in this challenging arena.

2 Next slide, please.

3 As you know, under Section 274(b) of the  
4 Atomic Energy Act, or AEA, the NRC may relinquish  
5 portions of its AEA-derived authority to states that  
6 have entered into an agreement with our agency that is  
7 Agreement States.

8 This is the genesis of the Texas question  
9 as to whether an Agreement State can regulate the  
10 disposal of GTCC waste. In 1985, Congress amended the  
11 Low Level Radioactive Waste Policy Act of 1980 -- let's  
12 call this LLRW from now on -- to clarify the  
13 responsibilities of the states versus those of the  
14 Federal Government.

15 As Cathy cited, the responsibility for the  
16 disposal of GTCC waste was assigned to the Federal  
17 Government in the Amendments Act, and it requires that  
18 commercially generated GTCC waste -- that is, GTCC waste  
19 resulting from activities licensed under the AEA by the  
20 NRC -- shall be disposed of in a facility licensed by  
21 the NRC.

22 Next slide, please?

23 Promulgated in 1982, 10 CFR Part 61 deals  
24 with the disposal of LLRW regulated by the NRC or an  
25 Agreement State. It contains certain provisions  
26 related to GTCC disposal. 10 CFR 61.7(b)(v) states

1       that there may be some instances in which waste with  
2       radionuclide concentrations greater than permitted for  
3       Class C would be acceptable for near-surface disposal  
4       with special processing or design, and these instances  
5       will be evaluated on a case-by-case basis, and that has  
6       happened.

7               On May 25, 1989, the Commission amended its  
8       regulations at 10 CFR 61.55(a)(2)(iv). It includes not  
9       only a provision whereby GTCC waste could be disposed  
10      of under Part 61, as approved by the Commission, but also  
11      the Commission's preference to dispose of GTCC waste  
12      under Part 60 or 63, recognizing -- at that time,  
13      recognizing that an intermediate disposal facility was  
14      not sufficiently developed, no intermediate disposal  
15      facility was proposed or planned by the Department of  
16      Energy, and the small volume of GTCC waste would not make  
17      a separate and intermediate facility cost effective.

18             The Commission chose to take an alternative  
19      and technically conservative approach versus revising  
20      the definition of high level waste as proposed in the  
21      associated advance notice of proposed rulemaking. The  
22      Commission recognized the possibility that the  
23      Department of Energy could choose to develop an  
24      intermediate facility and did not want to foreclose that  
25      option. The proposed rule noticed that such a facility  
26      would be evaluated against the performance objectives

1 of Part 61.

2 In the final analysis, this amendment  
3 specified that more stringent methods are to include  
4 geologic repository disposal, along with an explicit  
5 provision that proposals for other methods of disposal  
6 under Part 61 could be submitted to the Commission for  
7 its approval.

8 The Statements of Consideration for the  
9 final rule noted that the Commission found no health and  
10 safety basis to limit GTCC disposal to federal  
11 facilities, to the exclusion of other facilities  
12 licensed under the AEA.

13 Next slide, please.

14 What you have here is a Venn diagram that  
15 will show the relationship between low level  
16 radioactive waste and transuranic waste. I'll talk  
17 about this in some detail.

18 Next slide.

19 While GTCC waste may have a complex  
20 legislative and regulatory history, the issue of  
21 transuranic waste raises even more compelling  
22 questions. Transuranic waste is important because,  
23 according to the Department of Energy, most of the GTCC  
24 waste inventory has significant quantities of  
25 transuranic nuclides.

26 In response to the complex LLRW disposal

1 issue, Congress passed the 1980 LLRW Policy Act, which  
2 defined LLRW as radioactive waste not classified -- not  
3 classified as high level radioactive waste, transuranic  
4 waste, spent nuclear fuel, or byproduct material as  
5 defined in Section 11(a)(2) of the AEA.

6 As you are aware, LLRW is defined as what  
7 it is not rather than what it is. Therefore, according  
8 to the 1980 LLRW Policy Act, the definition of LLRW  
9 specifically provided that transuranic waste was not  
10 LLRW.

11 Next slide.

12 Part 61 defines LLRW consistent with the  
13 1980 LLRW Policy Act. Specifically, in 61.2, LLRW  
14 means radioactive waste, not classified as high level  
15 radioactive waste, transuranic waste, spent nuclear  
16 fuel, or byproduct material as defined in paragraphs 2,  
17 3, and 4 of the definition of byproduct material set  
18 forth in 20.1003 of this chapter.

19 Therefore, transuranic waste is explicitly  
20 excluded from the definition in Part 61 for low level  
21 radioactive waste. However, provisions describing the  
22 purpose and scope in 10 CFR Part 61.1 do not list  
23 disposal of transuranic waste among the activities  
24 specifically excluded under Part 61. Thus, the scope  
25 and the definition do not align.

26 Table 1 of the waste classification scheme

1 includes concentrations for transuranic nuclides.  
2 Hence, a rulemaking may be needed to address these  
3 misalignments, but we'll discuss this in more detail.

4 Next slide.

5 In 1985, the Amendments Act defines low  
6 level radioactive waste, or LLRW, as radioactive waste  
7 not classified as high level radioactive waste, spent  
8 nuclear fuel, or certain byproduct material. As a  
9 result of the Amendments Act, transuranic waste is no  
10 longer excluded from the definition of low level  
11 radioactive waste.

12 The NRC never made a corresponding change  
13 to Part 61, although we could have done so. As a result,  
14 the definition of LLRW in Part 61 does not align with  
15 the Amendments Act of 1985.

16 Next slide, please.

17 1988, Congress passed Price-Anderson  
18 Amendments Act, which amended the AEA by adding the  
19 definition of transuranic waste to the AEA, defined as  
20 material contaminated with elements that have an atomic  
21 number greater than 92, including neptunium, plutonium,  
22 americium, and curium, and that are in concentrations  
23 greater than 10 nanocuries per gram, or in such other  
24 concentrations as the NRC may prescribe to protect  
25 public health and safety.

26 Therefore, the AEA uses 10 nanocuries per

1 gram in the definition of transuranic waste, but allows  
2 NRC to change the value as long as it protects public  
3 health and safety.

4 Next slide.

5 Consistent with the latter portion of the  
6 AEA changes, and based upon the NRC classification  
7 table, certain LLRW with transuranic nuclides was found  
8 to be suitable for a Part 61 disposal facility.  
9 Specifically, 61.55, in Table 1, alpha-emitting  
10 transuranic nuclides with half-lives greater than five  
11 years, and a concentration that does not exceed 10  
12 nanocuries per gram, are acceptable for disposal as  
13 Class A waste. If they are greater than 10 nanocuries  
14 per gram, but less than 100 nanocuries per gram, they  
15 are suitable for disposal as Class C waste.

16 The Department of Energy has indicated that  
17 up to 87 percent of the non-defense GTCC waste contains  
18 transuranic nuclides with concentrations greater than  
19 100 nanocuries per gram. Studies have indicated a more  
20 realistic number would likely be lower in percentage  
21 that would contain transuranic nuclides. Regardless  
22 of the precise amount, this is transuranic waste  
23 according to the AEA.

24 Next slide, please.

25 So let's turn to the Texas question that  
26 Cathy cited. Staff recently provided you with a

1 Commission paper, SECY-0094, 15-0094, addressing NRC's  
2 regulatory history on GTCC waste disposal with a  
3 discussion on the types of GTCC waste streams and  
4 disposal challenges, along with options for a response  
5 to the TCEQ inquiry regarding whether it possesses the  
6 authority to license GTCC and transuranic waste  
7 disposal.

8 The options are: Option 1, NRC would  
9 license and regulate the receipt and disposal of GTCC  
10 waste and waste control specialists and would pursue  
11 rulemaking to amend Part 61 to address transuranic waste  
12 disposal.

13 Option 2, the NRC would allow the state of  
14 Texas to license and regulate the disposal of GTCC  
15 waste, and NRC staff would pursue a rulemaking to  
16 address transuranic waste disposal under Part 61.

17 Option 3, no action.

18 Next slide.

19 Under Option 1, the NRC staff would need to  
20 perform a review of the license application, including  
21 the performance assessment prepared by the applicant  
22 and other information required by Part 61. Staff would  
23 also need to develop site-specific technical safety and  
24 security requirements for this waste disposal.

25 Because licensing GTCC waste disposal  
26 would be a major federal action significantly affecting

1 the quality of the human environment, we would need to  
2 prepare an environmental impact statement. After  
3 consideration of the staff recommendations, the  
4 Commission could then make the necessary determinations  
5 to address health and safety of transuranic and GTCC  
6 waste disposal under 10 CFR 61.55(a)(2)(iv), and make  
7 a licensing decision.

8 Because the NRC would be developing  
9 site-specific safety and security criteria, and license  
10 conditions for the disposal of GTCC and transuranic  
11 waste, we would not need to pursue a rulemaking  
12 necessarily under Option 1. However, the staff  
13 recommends that we would do this to address this issue  
14 generically.

15 Next slide, please.

16 Under Option 2, the state of Texas would  
17 authorize the disposal of GTCC waste. However, the  
18 Commission would have to approve a proposal from the  
19 state of Texas to license near-surface disposal of GTCC  
20 waste in accordance with 61.55(a)(2)(iv) again.

21 The NRC staff would be available to support  
22 the state of Texas in conducting the licensing action,  
23 including developing technical safety and security  
24 criteria, and could conduct a peer review if requested.  
25 Otherwise, the regulation of such disposal would be  
26 reviewed under the Integrated Materials Performance



1 Evaluation Program, or IMPEP.

2 On March 25, 2015, as Mr. Maguire cited,  
3 TCEQ requested the NRC staff to perform a peer review  
4 of a performance assessment model submitted to TCEQ by  
5 waste control specialists on GTCC waste disposal. The  
6 NRC staff has provided limited comments, and TCEQ has  
7 requested continuous engagement on this model.

8 To generically resolve the issue of  
9 transuranic waste disposal, the NRC would need to  
10 conduct a rulemaking to address transuranic waste  
11 disposal in Part 61 similar to Option Number 1.

12 Alternatively, the state of Texas could  
13 license the facility for the disposal of GTCC and  
14 GTCC-like waste only. However, this is impractical,  
15 given that approximately 13 percent of the total volume  
16 of GTCC waste is not contaminated with transuranic  
17 nuclides with concentrations greater than 100  
18 nanocuries per gram, and it would not provide a generic  
19 approach.

20 Next slide, please.

21 Under Option 3, the Commission could  
22 decline to extend the Part 61 licensing scheme to allow  
23 near-surface disposal of GTCC and transuranic waste at  
24 this time without further development of safety and  
25 security regulatory framework.

26 The GTCC and transuranic waste streams can

1 continue to be safely stored until geologic disposal is  
2 developed for these wastes. The NRC would advise the  
3 state of Texas that the state does not have the authority  
4 to license disposal of GTCC waste or transuranic waste  
5 without Commission approval or further action.

6 Next slide.

7 So, in the final analysis, the staff  
8 recommends Option 2 with rulemaking to address the  
9 disposal of GTCC and transuranic waste. The staff's  
10 recommendation would provide a pathway; that is, the  
11 Commission's consideration and direction to address the  
12 jurisdictional question raised by the state of Texas.

13 The rulemaking, at a minimum, would address  
14 the transuranic waste definition in Part 61, which I  
15 cited as problematic, and offers the benefit of  
16 providing generic regulatory requirements for the  
17 disposal of transuranic waste and perhaps for GTCC  
18 disposal as well.

19 Additional practical efficiency would be  
20 achieved as Texas has already licensed the waste control  
21 specialist facility for disposal of Class A, B, and C  
22 low level radioactive waste.

23 That concludes my comments, and we will  
24 await your questions.

25 MR. WEBER: That concludes the staff's  
26 contribution to this panel, and we are happy to listen

1 to your questions and comments. Thanks.

2 CHAIRMAN BURNS: Thank you all for your  
3 presentations.

4 Commissioner Ostendorff will lead off with  
5 questioning.

6 COMMISSIONER OSTENDORFF: Thank you,  
7 Chairman.

8 Thank you all for your presentations. I  
9 had the privilege years back when I was at DOE to work  
10 with Mr. Marcinowski. And, Frank, it's good to see you  
11 here today. I appreciate your continued service on  
12 dealing with difficult problems.

13 MR. MARCINOWSKI: My pleasure.

14 COMMISSIONER OSTENDORFF: Some things  
15 never change.

16 Let me ask you one question. I appreciated  
17 the overview you provided from the Department of  
18 Energy's perspective of the different types of waste and  
19 the EIS issues. That was very helpful. I think I have  
20 a pretty straightforward question. With respect to the  
21 decision that we have before us, whether the NRC or the  
22 state of Texas would license a waste control specialist  
23 facility for greater-than-Class C waste, does that have  
24 any impact on the Department of Energy or your EIS in  
25 any way as far as a licensing body?

26 MR. MARCINOWSKI: I don't think it would

1       have any impacts on the -- our completion of the EIS.  
2       And, I mean, we have dealt with, you know, multiple  
3       regulators at, you know, many of our sites already, but  
4       they have, you know, regulated for different purposes.  
5       I mean, the state or regulators for the RCRA, you know,  
6       the Federal Government, whether it be EPA or somebody  
7       else, would regulate for the rad portion of things.

8               So we are kind of used to working in that  
9       environment. I'm not sure how that would apply here,  
10      particularly since we have an agreement with the state  
11      of Texas for who is going to take ownership of that site,  
12      you know, once it's all done. And if we've got  
13      intermingled waste, I mean, we'd have to see how the  
14      lawyers felt about that before I can give you a good  
15      answer.

16              COMMISSIONER OSTENDORFF: Okay. That's  
17      fair. Thank you.

18              Mr. Maguire, thank you again for being  
19      here. I think your presence, you know, highlights to  
20      us, reminds us of the importance of the Agreement State  
21      partnership we have with Texas and all of the other  
22      Agreement States. And it's good to see you again. I,  
23      again, appreciated my visit down to your facility back  
24      in February of this year, and I have always been  
25      impressed with the scope and the professionalism of your  
26      organization. So thanks for being here today.

1           I think we all agree with your comments  
2           about this being a very complex issue. And I think  
3           where -- I speak for myself -- I think the other  
4           Commissioners as well would probably agree -- that we  
5           appreciate your sending the letter to us when you did,  
6           because I think certainly it put it on our plate, the  
7           staff's plate, and I think you have asked an important  
8           question. It's not something you can answer in 24  
9           hours. So thank you for your proactive work there.

10           Let me ask you a question. Larry -- I'm  
11           going to come back to Larry later on with questions, but  
12           Larry mentioned, you know, if asked, the NRC staff could  
13           pursue a peer review if the Commission made the decision  
14           to have Texas proceed as a licensing entity here.

15           Can you speak a little bit about -- or your  
16           initial thoughts on what technical assistance or  
17           particular technical areas might be helpful if the  
18           Commission approved the staff's recommended Option 2?

19           MR. MAGUIRE: Well, and we have already  
20           started with staff to ask that they peer review a very  
21           draft version of the performance assessment that would  
22           include some GTCC inventories in it. I think that's a  
23           large area is working with the performance assessment  
24           model.

25           And, again, this model is probabilistic.  
26           We can twist the knobs and punch some buttons and make

1       it deterministic. I mean, we can look at -- we can look  
2       at lots and lots and lots of scenarios with that model,  
3       but the key thing is -- is when the model is developed,  
4       that the best possible science undergird those  
5       algorithms and assumptions that are made in putting the  
6       model together.

7               The NRC staff is very, very, very capable  
8       when it comes to looking at the model development, the  
9       kinds of things that need to be considered when putting  
10      the model together. And so that is a big one. But I  
11      think -- I think as the model develops, and as we learn  
12      to work with the model -- and I think NRC is headed down  
13      a pathway where performance assessment models are going  
14      to be a major component in most waste disposal  
15      decisions.

16             As we look at that, our view is, as we also  
17      think about the model in terms of defense-in-depth, it  
18      will drive licensing conditions. And so clearly if the  
19      site were only going to have Class A waste, no depleted  
20      uranium, no greater-than-Class C, no B and C waste, the  
21      kind of belts and suspenders that you have to have around  
22      waste disposal are certainly less. They are still  
23      large, but they are certainly less than what they would  
24      have to be as you begin to ramp up what kind of waste  
25      you dispose of.

26             And I think that's the area where we would

1       expect to have lots of integrated conversations with NRC  
2       staff in terms of looking at the kinds of license  
3       conditions, the kinds of requirements that would really  
4       allow us to turn around and say as the state of Texas,  
5       working with our federal colleagues, that we have  
6       applied the best science we have available.

7               I don't think Texas would want to turn its  
8       back on any source of good science to help it make those  
9       decisions. And so certainly coming to NRC would be a  
10      very active part of the way we see putting together a  
11      license, should we ever get to that point.

12             COMMISSIONER OSTENDORFF: Thank you. I  
13      appreciate that.

14             Larry, I want to add my thanks to those of  
15      Cathy Haney's to you for your service. I know when I  
16      first got here we traveled out to WCS and LES back five  
17      years ago, and I participated, along with you, in a  
18      number of waste management symposia and conferences,  
19      and I've seen firsthand the respect that you command  
20      nationally and internationally in the areas that you  
21      have addressed so capably in your position.

22             And I think you are just a great example for  
23      our entire organization as to technical competence and  
24      professionalism across the board, and I just want to  
25      thank you for all you have done for everyone, not just  
26      the NRC but for the country.

1 MR. CAMPER: Thank you.

2 COMMISSIONER OSTENDORFF: That doesn't  
3 mean you get off without questions.

4 (Laughter.)

5 MR. CAMPER: No. I know how that goes.

6 COMMISSIONER OSTENDORFF: So let me start  
7 out, you know, with the recommended Option 2 before the  
8 Commission. Can you -- you know, if the Commission were  
9 to approve that, can you talk a little bit about what  
10 criteria the NRC staff would use to evaluate the Texas  
11 approach? And Part 2 to that would be, and what, if any,  
12 Commission direction might we want to consider  
13 providing to our staff to address such criteria?

14 MR. CAMPER: Thank you, Commissioner, for  
15 your comments, and thank you for your question.

16 I think it's important -- if one looks at  
17 Option 1, or one looks at Option 2, or one looks at Option  
18 3, the question that comes to one's mind always is, is  
19 there a standard? Is there a criteria? And there  
20 would be under any one of these options, but let's talk  
21 about Texas in particular.

22 The staff would work with Texas to develop  
23 the technical criteria that Texas would need to address  
24 as part of its licensing process. A good place for us  
25 to start is the technical information that is contained  
26 in Enclosure 2 to the SECY that we provided.



1           There is a great deal of technical  
2 information in there that Texas could use as a starting  
3 point, and we would work closely with them, assuming  
4 they ask us to do that and we know that they will.

5           It is also important to understand that if  
6 the Commission decides to approve Option 2, it is only  
7 the first act in the play, if you will. Texas, under  
8 the conditions required by 61.55(a)(iv), (b)(iv),  
9 (2)(iv), require that a proposal be submitted. That  
10 proposal will be multi-faceted.

11           It is going to identify what are our  
12 technical criteria that's pertinent. It is going to  
13 identify the licensing process. It is going to  
14 identify what hearing process Texas has, because the  
15 Commission has to be positioned to make a decision if  
16 it's comfortable with allowing Texas to proceed to  
17 license the site. So there are many parameters that  
18 will go into that proposal.

19           Charles, in his comments, emphasized the  
20 performance assessment. The performance assessment is  
21 a key driver. I listened to all of the presentations  
22 today about decisions that were made in 1982 and 1989,  
23 and the world has changed. The operating parameters  
24 for the disposal of low level radioactive waste today  
25 is quite different than was envisioned when previous  
26 Commission decisions were made.

1           That performance assessment and what it  
2           identified that that site is able to dispose of will be  
3           paramount. We will work closely with the state of  
4           Texas. We have already started that process to review  
5           that performance assessment, and we will work closely  
6           along the way, so that if we ever get to the point that  
7           Texas comes with a proposal to the Commission, we will  
8           know that that performance assessment passes muster.

9           COMMISSIONER OSTENDORFF: Thank you.

10          Mike, did you want to --

11          MR. WEBER: Yes. If I could just add,  
12          there are a range of alternatives that would be used to  
13          come up with the siting -- or the criteria. And the  
14          staff would be happy to work with the Commission to put  
15          forward proposals for the Commission to consider.

16          Ultimately, it will be the Commission's  
17          call on what those criteria should be. So, but we  
18          didn't want to be presumptive in going forward and  
19          developing those criteria until we knew where the  
20          Commission stood on the policy matter.

21          COMMISSIONER OSTENDORFF: Thanks for that  
22          explanation. Thank you, both.

23          Thank you, Chairman.

24          CHAIRMAN BURNS: Thank you.

25          Commissioner Baran.

26          COMMISSIONER BARAN: Thanks.

1                   Mr. Maguire, thanks again for being here.  
2           It's good to see you again.

3                   Let me start with a real -- maybe the only  
4           basic question on this whole topic, which maybe is  
5           obvious, but I just want to confirm, should we interpret  
6           your letter to us to mean that TCEQ would like -- would  
7           prefer to do the licensing rather than NRC, of this  
8           facility?

9                   MR. MAGUIRE: Yes. I would just start by  
10          saying the letter that I sent you is probably the most  
11          difficult letter I have ever had to write, because I had  
12          to ask you if I could without saying that I have already  
13          decided that I want to. And so I -- I drove our  
14          attorneys up the wall, my management up the wall. The  
15          letter was edited more than once, I'll just say that.

16                   (Laughter.)

17                   Probably a couple of order of magnitudes  
18          over that. But it is true, and it would be fair to say,  
19          that if we are going to have greater-than-Class C waste  
20          streams being disposed of in Andrews County, Texas, I  
21          think we would prefer to be the licensing authority.

22                   And for some of the things that have been  
23          mentioned, now we -- saying that, we do have a marvelous  
24          relationship with the Nuclear Regulatory Commission,  
25          and we could see ourselves surviving I think if the  
26          Nuclear Regulatory Commission were to be the licensing

1 authority. But there would be a strong preference in  
2 Texas for us to be out in front in terms of that licensing  
3 activity.

4 There would also be a very strong  
5 preference in Texas that if we are out in front that we  
6 have the full embraced endorsement of the Nuclear  
7 Regulatory Commission with what we are proposing to do.

8 COMMISSIONER BARAN: Okay. That's very  
9 helpful. Would you have any particular concerns with  
10 NRC doing the licensing? If we opted to go with NRC  
11 doing the licensing, are there concerns you would have  
12 with that?

13 MR. MAGUIRE: I think the single biggest  
14 thing we would want to talk about is how the disposal  
15 cell was placed, and I think we sort of have a basic  
16 assumption that if greater-than-Class C waste is being  
17 disposed of in a disposal cell, it would need to be on  
18 the bottom of it.

19 And so we would just have lots of questions  
20 about what is going to go over the top of that, and so  
21 is it -- would it be a sale that had waste in the bottom  
22 and then lots and lots and lots and lots and lots and  
23 lots of sand? You know, another 90 feet of sand on top  
24 of it.

25 And those would be really, really important  
26 considerations to us. We would be asked, I'm sure, by

1 the people that we report to what impact that then would  
2 have on the performance assessment for the site as a  
3 whole. We have a very strong sense of obligation that  
4 the compact facility continue to have not only curie  
5 space and cubic feet available but dose to the public  
6 available for decommissioning of the three nuclear  
7 utilities that are a part of the compact.

8 So those would be our basic questions.

9 COMMISSIONER BARAN: Okay. And right  
10 now, as I understand it, your regulations, Texas  
11 regulations, prohibit GTCC being disposed of in Texas,  
12 but there is a proposed rulemaking to eliminate that  
13 prohibition. Is that something -- I know you have your  
14 own hoops to deal with -- or to work with, not deal  
15 with -- work with --

16 (Laughter.)

17 Do you anticipate that Texas would proceed  
18 to lift the prohibition on taking greater-than-Class C  
19 regardless of whether Texas or NRC is the licensing  
20 agency?

21 MR. MAGUIRE: I think the Commission, in  
22 instructing us to engage NRC and Department of Energy  
23 relative to that rule petition, indicates their  
24 interest in perhaps doing that. I think -- I can't  
25 speak for the Commission because it is strictly their  
26 policy call whether or not to change the rules, but they

1       have at least indicated in sending us to engage on it  
2       that they have an interest in it.

3               COMMISSIONER BARAN:   Okay.   And so let me  
4       turn to Cathy and Larry for a minute and ask kind of the  
5       equivalent, obvious question, which is it's probably a  
6       little bit unusual to have agency staff say, you know,  
7       "We could license it, or someone else could license it.  
8       Let them license it instead."

9               Can you just walk us briefly through  
10       why -- why has the staff recommended that Texas do the  
11       licensing here?   What are the -- you know, briefly, what  
12       are the key reasons why you think that it would be better  
13       for Texas to license than for NRC to license?

14              MR. WEBER:   It makes sense.

15              COMMISSIONER BARAN:   There it is.   Okay.  
16       It makes sense.   Can you -- you can jump in here.

17              MR. CAMPER:   Well, it's -- there's a lot of  
18       legal stuff here that we'll avoid.

19              COMMISSIONER BARAN:   Yes.

20              MR.    CAMPER:       But   after   careful  
21       examination, we did reach the conclusion that Texas  
22       could license this.   Once we reached that conclusion,  
23       then you begin to trip to things that Mike just alluded  
24       to.   It is far more efficient.   The resource estimate  
25       that we provided in the paper would be a factor of two  
26       more costly if we did it versus the state of Texas.

1                   They are intimately familiar with the site  
2                   already, and they have a very successful program  
3                   currently, and they have already reached out to us for  
4                   a very cooperative arrangement to proceed ahead to  
5                   develop a proposal, if the Commission goes that way,  
6                   that hopefully it ultimately would pass Commission  
7                   satisfaction.

8                   COMMISSIONER BARAN:   Okay.

9                   MR. CAMPER:   So it's more efficient.  It  
10                  makes more sense.

11                  COMMISSIONER BARAN:  Go ahead, Mike.

12                  MR. WEBER:   If I could just add to that.  At  
13                  one point in my career, I was the Chief of the Low Level  
14                  Waste Branch in the NRC, in NMSS.  And we actually  
15                  stopped licensing the Barnwell site, and the Hanford  
16                  site, because we found that we were adding little to no  
17                  value because the state was doing a very effective job  
18                  in ensuring the safety of that facility, and we were  
19                  adding cost unnecessarily.

20                  So we ultimately found a way within the  
21                  regulatory framework to terminate our licenses in lieu  
22                  of the state continuing to be the sole regulator, and  
23                  that added a lot of efficiency and effectiveness,  
24                  because then we were asking the licensee similar  
25                  questions but getting different answers, and, you know,  
26                  all those sorts of things.  So it was just a more elegant

1 solution.

2 COMMISSIONER BARAN: And are you concerned  
3 at all about -- I asked this question of Mr. Kirk, I  
4 think, on the first panel. That because under our  
5 regulations the Commission would need to approve any  
6 non-repository option, if Texas were the licensing  
7 authority for a WCS proposed cell, we would still need  
8 to sign off on it.

9 You referred a little bit to this -- to our  
10 review there. Are you concerned that having two  
11 regulators involved in the approval process is going to  
12 unnecessarily complicate things? Do we lose some of  
13 the efficiency we would have gained in having Texas do  
14 it by having a separate NRC approval process?

15 MR. CAMPER: No. I think -- no, for two  
16 reasons. One, for Texas to proceed to regulate the  
17 disposal of GTCC waste, the Commission will have to  
18 approve that. And the Commission will react to what  
19 will be a comprehensive proposal. Once the Commission  
20 makes that decision, if it did, then Texas proceeds to  
21 regulate.

22 Under Option Number 1, one of two things is  
23 going to happen. Either a new cell would be built that  
24 we would license, or that portion of the existing cell  
25 that would be used for GTCC waste, that license would  
26 have to be modified to reflect that fact. Under that



1 scenario, one could argue that you had two-regulator  
2 problem. But if Texas proceeds to license, we would  
3 oversee Texas' regulation of GTCC waste ongoing under  
4 the IMPEP program, after having worked with them to  
5 develop, hopefully, a successful proposal.

6 COMMISSIONER BARAN: Okay. Well, let me  
7 ask, Mr. Maguire, in terms of just thinking through, are  
8 there any differences between what your process would  
9 look like if you did it and the process we would have  
10 would look like if we did it, it sounds like what is  
11 contemplated is if Texas does the licensing, it would  
12 be a license amendment.

13 Are there differences, you know, in the  
14 scope of environmental review, public participation,  
15 hearing rights for stakeholders? Do you guys do the  
16 equivalent of an EIS? Do you do the equivalent of a  
17 safety evaluation report? Would the process look  
18 different if -- depending on who regulates?

19 MR. MAGUIRE: Well, because of  
20 compatibility requirements that every agreement state  
21 has, our processes would be very, very, very similar.  
22 I will say this. State agencies stand closer to the  
23 flame than federal agencies do, and so the public  
24 participation aspect of our process is much, much more  
25 exposed than it might be for the Nuclear Regulatory  
26 Commission, not that you all's doesn't have a lot of

1 public participation, but it is very transparent, it is  
2 very involved, it is long, drawn out, and the public  
3 engages things like this.

4 MR. WEBER: But you should expect that  
5 there will be differences, differences driven by state  
6 law, a difference, you know, in administrative process,  
7 differences driven by the development of their  
8 regulatory program. So it's not going to be an  
9 identical -- we give the states a lot of flexibility  
10 under the Agreement State program, provided that they  
11 achieve both an adequate level of protection and a  
12 compatible national program.

13 COMMISSIONER BARAN: Okay. Let me ask our  
14 General Counsel one question, purely an  
15 information-gathering mode type question.

16 Margie, Section 274(c) of the Atomic Energy  
17 Act states that "The Commission shall retain authority  
18 and responsibility with respect to regulation of the  
19 disposal of such other byproduct, source, or special  
20 nuclear material as the Commission determines by  
21 regulation or order should, because of the hazards or  
22 potential hazards thereof, not be so disposed of without  
23 a license from the Commission."

24 Do you think it's clear that the Commission  
25 could decide in its discretion to handle the licensing  
26 of a GTCC disposal facility regardless of how we

1 interpret Section 3(b)(2) of the Amendments Act?

2 MS. DOANE: Yes.

3 COMMISSIONER BARAN: Okay. And that's  
4 all I have. Thank you.

5 CHAIRMAN BURNS: Okay. Thank you very  
6 much.

7 Again, before I start with questions, I  
8 appreciate Mr. Maguire's reflections on the weather.  
9 And we are actually -- I think this is unusually nice  
10 right here in Washington this time of year. But I will  
11 just share, I was out in Texas a few weeks ago giving  
12 a presentation in Austin, visiting our regional office  
13 in Arlington, and then had the chance to visit the South  
14 Texas facility.

15 And one of the nice things we often do is  
16 offer congressional staff or congressional members do  
17 a -- we had a group of about eight go along, and  
18 apparently the feedback I got was they really  
19 appreciated the opportunity to visit the plant with us  
20 and the NRC representatives, but the question came back  
21 to me is why the heck would you have planned this trip  
22 now when it was 100 degrees outside?

23 So, anyway, they were questioning my  
24 insanity, and I can understand that, but -- a little bit,  
25 but I'm glad we provided some good weather for you here  
26 today.

1                   A couple of questions. I want to ask Mr.  
2     Marcinowski a question, just make sure my  
3     understanding -- it's been a while since I read the  
4     Energy Policy Amendments Act. But essentially I think  
5     what you're saying -- what the Department is obligated  
6     to do is do this generic environmental impact statement  
7     and essentially deliver it to the Congress. Is that how  
8     I --

9                   MR. MARCINOWSKI: Well, it's actually a  
10    separate and distinct report that we would have to  
11    produce.

12                  CHAIRMAN BURNS: Oh, okay.

13                  MR. MARCINOWSKI: And that we would, you  
14    know, give to the appropriate committee in Congress, and  
15    wait for them to somehow respond as to whether they agree  
16    with what we are proposing or not.

17                  And in prior discussions with them, they  
18    have indicated that perhaps this could be done by a  
19    simple letter to the Department, or, you know, it  
20    doesn't have to be a complicated process. But we need  
21    to renew those discussions with the Hill.

22                  CHAIRMAN BURNS: Right. And you alluded  
23    to the possibility of a separate statement, but as I  
24    understood that, that would relate to if there was a  
25    particular relationship, you'd say, between the  
26    Department and the WCS site, or I was trying to

1 understand what you were getting at in that.

2 MR. MARCINOWSKI: Oh. We have an  
3 agreement with the state of Texas that when the facility  
4 is closed that the Department would then take ownership  
5 of the site for the long-term management of the  
6 facility.

7 CHAIRMAN BURNS: Right.

8 MR. MARCINOWSKI: And so we have an  
9 agreement with them, and I just didn't know how, you  
10 know, any -- that might be impacted if we've got a  
11 separate cell now, or some portion of a cell, that has  
12 got waste regulated by a different entity --

13 CHAIRMAN BURNS: Right.

14 MR. MARCINOWSKI: -- how does that all  
15 work. That's what I was just indicating.

16 CHAIRMAN BURNS: Okay. Thanks for that  
17 explanation. I think I understand now.

18 Mr. Maguire, again, welcome. And one of  
19 the things maybe you, I think, touched on in terms of  
20 the public participation process, could you just  
21 generally describe what it takes in Texas, what the  
22 nature of the public engagement is under the Texas law?

23 MR. MAGUIRE: Sure. So if we got an  
24 amendment application for a WCS for the disposal of  
25 greater-than-Class C waste streams, we would first of  
26 all look at that amendment request administratively.

1 And once it was determined that it was administratively  
2 complete, that would go to a public notice, and the  
3 public would have a 30-day comment period. We would  
4 receive comments during that period.

5 Typically, we do not do anything go respond  
6 to comments based on the administrative complete  
7 notice. But certainly if the public calls something to  
8 our attention in those comments that really affected the  
9 administrative completeness of it, we would want to  
10 address that before moving forward.

11 Typically, administratively completely  
12 holds up under notice, and we begin our technical  
13 review. And then I can take -- and certainly a project  
14 like this might take a really long time, but the -- we  
15 look at the technical aspects of the license, of course  
16 the performance assessment would review  
17 defense-in-depth. Those things would be a vital part  
18 of that evaluation. But there would need to be other  
19 things, and there would be consideration given to what  
20 sort of license conditions might need to be put in place.

21 And so toward the end, then, of that  
22 technical review process, we would draft a final  
23 proposed license, and we would share that with  
24 government and with WCS first. And once that has been  
25 shared, then we would -- and depending on what changes  
26 needed to be made, then we would publish a second notice,

1       and that second notice would notice what we are -- what  
2       the executive director is proposing as final license.

3               And, again, there is a comment period.  
4       During both of the comment periods the public can  
5       request public meetings, and they can request a hearing  
6       with our state Office of Administrative Hearings. And  
7       so if there is a request for a public meeting, we hold  
8       those meetings if there is significant public interest,  
9       or if there is an interest on the part of an elected  
10      official. And so we could have a public meeting.

11             If there is a request for a hearing, we call  
12      that a contested case hearing. Then, once the comment  
13      period is closed, we respond to the comments. There is  
14      another chance given to the public to request a  
15      contested case hearing or an opportunity for them to  
16      withdraw their request, if they chose to do that.

17             But if there are still standing requests,  
18      the Executive Director cannot issue a contested  
19      license. And so that, then, has to go before our  
20      Commission. The Commission determines whether or not  
21      there is an affected party and a justiciable issue that  
22      could go to the state Office of Administrative Hearings.

23             If so, then it goes before a judge,  
24      administrative law judge. The agency would put on its  
25      case, the regulated entity would put on its case, and  
26      the public would put on -- the affected parties would

1 put on their case. The judge then has a proposal for  
2 decision. He comes back before -- he/she comes back  
3 before the Commission to present their proposal for  
4 decision.

5 The Commission makes a decision based on  
6 the information provided by the judge, and they can  
7 either deny the license, refer the license back to the  
8 Executive Director, or issue the license.

9 CHAIRMAN BURNS: Good. Well, thanks for  
10 that thorough explanation. But it is -- good, it is  
11 helpful for -- I think for me in terms of trying to -- in  
12 understanding different processes and procedures,  
13 very -- you know, different, but in many ways similar  
14 to sort of the thorough vetting that -- I know that we  
15 would do.

16 For the staff, one of the questions I  
17 asked -- and I'm -- I recognize partly this is a  
18 historical issue, but refresh my -- it would be helpful  
19 if you'd refresh my recollection. Larry, you alluded  
20 to changes in one of the sets of amendments -- one of  
21 the Amendments Acts in which it made this change to the  
22 transuranic definition, but not adopt -- it was not  
23 adopted in NRC regulations.

24 Can you give me some context of why that  
25 hadn't happened earlier? It may well be what was -- you  
26 know, there was no, if you will, burning platform or



1       urgency with respect to it. Anything you can to help  
2       with that?

3                   MR. CAMPER: Well, thank you for the  
4       question, Chairman. The transuranic issue is, indeed,  
5       an interesting one to research. You will find back in  
6       the 1970s transuranic waste was disposed of in  
7       near-surface low level waste disposal facilities,  
8       basically in trenches. Along the way, in 1974, the AEC  
9       started a rulemaking that would not have let that  
10      happen. That did not become a final rule.

11                   I suspect that when the 1980 Act was  
12      created, Congress was aware of that, and, therefore,  
13      chose to exclude transuranic waste. Along the way,  
14      there was a lot of discussion about transuranic waste  
15      after that in a 1985 -- particularly, in the '82/'83  
16      timeframe, transuranic waste was looked at. There were  
17      some working groups that took place. In 1985, they  
18      removed that exclusion.

19                   We actually developed a working group that  
20      looked at the changes that were brought about by the 1985  
21      amendment. And in looking back at the work that the  
22      group did, there were a lot of other changes that came  
23      about in the 1985 Act. We focused upon them. We did  
24      not focus at all -- I can't find a word about the  
25      transuranic waste changes.

26                   CHAIRMAN BURNS: Mike?

1                   MR. WEBER: I think Larry will correct me  
2                   if I'm wrong, but the changes that occurred to the Act,  
3                   the Atomic Energy Act, on the definition of transuranic  
4                   waste worked in conjunction with the WIPP Land  
5                   Withdrawal Act. So it was focused on preparation for  
6                   that licensing certification process. So it wasn't  
7                   viewed at the time as NRC's business.

8                   CHAIRMAN BURNS: Yes. Because the WIPP  
9                   is -- of course, is the Environmental Protection Agency.

10                  MR. WEBER: Right. And DOE, and not  
11                  involving NRC except with respect to certification of  
12                  the transportation packages.

13                  So, also, I would point out that the low  
14                  level waste program at the time was really focused on  
15                  performance assessment here at the NRC. So we were  
16                  working on the Branch Technical Position on performance  
17                  assessment and trying to work with our state partners,  
18                  because NRC had no licensing responsibility at the time  
19                  for low level waste disposal.

20                  So we were in the support mode to the  
21                  Agreement States as part of our partnership, to help  
22                  them do what they need to do to ensure proper regulation.

23                  CHAIRMAN BURNS: Okay.

24                  MR. CAMPER: Yes. I would add to that, if  
25                  I might, Chairman, that if you go back and look, I think  
26                  that the staff -- in fact, Paul Lohouse, who was then

1 a branch chief for the program, gave a presentation in  
2 1982 where he talked about the fact that we weren't going  
3 to do a separate rulemaking to address transuranic  
4 waste. Rather, we were addressing it within the waste  
5 tables as I cited during my presentation.

6 I think there was not a recognition there  
7 was going to be as much of it as turned out to be. And,  
8 therefore, it just wasn't on the scope to make that  
9 adjustment.

10 CHAIRMAN BURNS: Okay. So thanks very  
11 much for that.

12 Commissioner Svinicki.

13 COMMISSIONER SVINICKI: Well, I will add  
14 my thanks to the NRC staff for all of the work that was  
15 done, not just those of you at the table but all who  
16 contributed to the paper, which is very comprehensive,  
17 and also to our federal and state partners who are  
18 represented here today.

19 I think I had -- an issue recently arose in  
20 my office. We were looking at a paragraph I had  
21 written, and I was debating affected versus effected.  
22 I don't know why I find this one grammar rule hard to  
23 remember, but I went in to Alan Frazier, who is on my  
24 staff, who was just the victim that I found, and I said,  
25 "Are you an amateur grammarian?" and he said, "Well, I'm  
26 an engineer, so no."

1 (Laughter.)

2 And I said, "Well, I am an engineer, too,  
3 but, you know, I think what motivates many engineers is  
4 we are problem solvers." And that's why we become  
5 engineers versus becoming eggheads -- I mean,  
6 scientists, is because I think some of us just really  
7 like to tinker with things and problem solve.

8 This is a complicated national issue or  
9 problem to solve. It has legal, technical, and policy  
10 dimensions. But I just want to credit all of you and  
11 our other presenters. I think there is a spirit of  
12 problem solving. The other complexities, some of which  
13 are very -- just kind of, you know, words and looking  
14 at words and meanings, and that's complicated stuff,  
15 those things will get sorted out eventually.

16 But at the end of the day, I think there has  
17 been a good spirit of wanting to look to the heart of  
18 the issue and put forward solutions and ideas and  
19 proposals. And I credit the state of Texas for asking  
20 the question -- Commissioner Ostendorff reflected on  
21 that -- and you'd be amazed, if you spend enough time  
22 in Washington, what you find kind of refreshing. It is  
23 refreshing that someone would say, "Well, if we don't  
24 know, let's ask." I'm sorry that the letter was painful  
25 to generate. It's well done, if that's any  
26 compensation to you. And my colleagues have covered,

1 as I always expect, a lot of terrain here very ably and  
2 efficiently.

3 So that allows me to just turn to Larry  
4 Camper now with the remainder of my time. Larry, I also  
5 want to join my colleagues in commending you for your  
6 long service here. These are -- kind of these  
7 departures from NRC are the unpleasant things, not that  
8 we don't wish people well. We do. It's well-earned,  
9 whatever it is you desire to do in the next phase of your  
10 working life or perhaps just to have some recreation and  
11 time with family. It is very well-earned, and so I  
12 don't begrudge you any of that.

13 I also have gone to conferences on the  
14 subject matter where you are very expert and seen and  
15 witnessed the same thing, the tremendous regard and  
16 esteem you are held in nationally certainly,  
17 internationally as well. And I remember thinking when  
18 I spoke on something -- again, I think at a low level  
19 waste conference or maybe a waste management  
20 conference, and I didn't know you terribly well, but you  
21 were there. I think you were moderating another panel  
22 or something.

23 And I thought after you spoke, I thought,  
24 gee, that one guy is carrying around a lot of our  
25 institutional knowledge. And, you know, it's  
26 compliment to you, but it's an organizational

1 vulnerability. And you are walking around with a lot  
2 of it, and now you're walking right out the door with  
3 it, which isn't the greatest possible feeling. But we  
4 will reside confidence in the fact that you have  
5 mentored many, many NRC staff in this subject matter  
6 area. Thank you for that. That is an enduring  
7 investment in the institution, and we credit you with  
8 that.

9 And I think Cathy said you have 34 years of  
10 federal service. These numbers at NRC are always  
11 really impressive. People have worked here a really  
12 long time, and I -- you know, you kind of wonder to  
13 yourself, what motivated a person to work in this area?

14 I did joke a little bit that you will be  
15 remembered, as Cathy described -- and I said whether you  
16 want to or not -- I probably talked over the  
17 transcription, but Cathy was trying to be very dignified  
18 about it. But I have often said at NRC retirement  
19 parties that we do not get to choose the contributions  
20 that we are remembered for. Others will decide the  
21 contributions we make, and that I think what is always  
22 revealing is that what you think people find the most  
23 gratifying or memorable about their own career is likely  
24 very different than the things they think that they are  
25 most proud of, that they conquered and contributed.

26 So I think somewhere between the two is the

1       accurate answer of kind of the impact that we have had  
2       on any institution.

3               And so what I've observed, and everyone  
4       around this table has chosen public service -- even the  
5       other federal and state partners who are here, so it's  
6       interesting to me. I don't find people who stay in it  
7       for their careers, they are not put off by complex  
8       issues, as we have discussed today, long hours or hard  
9       work.

10              I think the one thing that I -- and I will  
11       have 25 years. I mention that too much, but I will have  
12       that at the end of the year. It scares me a little. I  
13       don't mention it self-congratulatory. It's  
14       frightening how the years go by.

15              But I think that my moment of frustration  
16       is when there -- and it puzzles me to death, this  
17       implication that people who choose public health and  
18       safety, you know, other public missions, any  
19       implication that they would have a kind of a careless  
20       or reckless disregard for that very mission that, by the  
21       way, they choose to get up every day and devote  
22       themselves to.

23              So that does not square with my observation  
24       of people in public -- it's a very honorable thing to  
25       work in public service, and I know that it's sad that  
26       that's a bold statement I guess to make these days.

1       That's very, very unfortunate.

2                   Mr. Maguire talked about standing close to  
3       the flame. There is another political -- I'm not a  
4       political scientist, but there is another political  
5       view that says government governs best that governs  
6       closest to the people. So I think that's another way  
7       of talking about that flame and being close to it.

8                   But maybe I'll ask you this question, and  
9       it's just as straightforward as it sounds. Are the  
10      women and men who work at the Texas Commission on  
11      Environmental Quality committed to the public health  
12      and safety of Texas citizens and Texas citizens of the  
13      future? If you were aware of a technical issue or  
14      anything that needed to be investigated in terms of an  
15      analysis or something brought to your attention, would  
16      you pursue that?

17                  MR. MAGUIRE: Yes, ma'am. And I so  
18      appreciate what you said. I mean, it -- we wouldn't be  
19      there if we didn't care and if we weren't passionate  
20      about it. And I have to say, and I think WCS would back  
21      me up really quickly. I mean, we are very passionate  
22      about the program that we work in there.

23                  And when we see things, we take them head  
24      on, and we take them head on very, very quickly, because  
25      we can't -- we hold the public trust, and we can't -- we  
26      can't deny our obligation to do that. And we would be



1       doing something else if we weren't passionate about  
2       that, I think.

3                   COMMISSIONER SVINICKI:   And I began my  
4       career in public service at a state regulatory agency,  
5       and so I feel a little -- I'm not from Texas, and I  
6       can't -- but you know what? I found myself thinking,  
7       don't mess with Texas. A little bit of my Texas got up  
8       there. You know, when there is any implication that a  
9       state agency is some kind of, you know, pale substitute  
10      for other regulation, I just -- I reject that.

11                  MR. MAGUIRE:   It's just not true. But,  
12      you know, people do say that, and I think that's  
13      unfortunate. But I've spent my career, both on the  
14      outside and both on the inside, and I feel far more noble  
15      about my last 10 years working for the state and the  
16      environmental agency than any other thing I've done.

17                  COMMISSIONER SVINICKI:   Thank you for  
18      that. And I don't want our DOE colleague to feel that  
19      I didn't have some commentary for you. I thought  
20      you -- you did a great job in getting me on the edge of  
21      my seat. You talked about the preferred alternative,  
22      and you said, "The preferred -- I can say this about the  
23      preferred" -- I thought you were going to make some news  
24      here today on the preferred alternative.

25                               (Laughter.)

26                               You really had me going, because you said,

1 "There is going to be options." And I thought, he is  
2 going to say something, he is going to say something.

3 But, you know, okay, we will have to stay  
4 tuned on your preferred alternative, which is actually  
5 going to be I guess preferred options, or the options  
6 inside the alternative? How does that work?

7 (Laughter.)

8 MR. MARCINOWSKI: Well, I just want to say,  
9 my philosophy on waste disposal is, you know, given the  
10 nature of the business and the fact that there are  
11 regulatory issues, political issues, that crop up all  
12 the time, that some are unexpected, that we need options  
13 with regard to the disposal facilities.

14 So if I can have, you know, two or three  
15 potential disposal options, in case something happens  
16 that affects disposal at one facility, then I've still  
17 got an alternative.

18 COMMISSIONER SVINICKI: Okay. And I'm  
19 not questioning -- anything you can get past your NEPA  
20 attorneys is fine by me. I'm not going to question it.  
21 It's a very complex area of law.

22 I want to give Mr. Camper the last word.  
23 When you think about your time at NRC, what are you most  
24 proud of?

25 (Laughter.)

26 MR. CAMPER: Whoa. Whoa, whoa, whoa.

1 Let me make a comment about --

2 COMMISSIONER SVINICKI: That was supposed  
3 to be a question that you would welcome answering.

4 MR. CAMPER: I'll come to that. Let me  
5 make a comment about the issue before us, though,  
6 because I want to pick up on something that you said  
7 about solving a problem. As I have worked with the  
8 staff to --

9 COMMISSIONER SVINICKI: You realize that  
10 Cathy and Mike are very nervous right now.

11 (Laughter.)

12 MR. CAMPER: I'll get to them in a minute.

13 Now, as I have worked with the staff in  
14 addressing this challenge, one thing that has struck me  
15 very, very strongly about solving a problem is this  
16 issue of orphaned waste at greater than 100 nanocuries  
17 per gram for TRU is a problem. It is a regulatory  
18 problem that we should fix.

19 There is a lot of it, and right now there  
20 is no place for it to go. I strongly urge the Commission  
21 to address that. It troubles me a lot.

22 With regards to your question, it is -- I  
23 think if I look back over the years, I can't believe how  
24 many great issues and challenges there have been. It  
25 is -- I often say every day is just a hoot. I mean, every  
26 day I'm meeting with the staff, every day we're facing

1       challenging issues, every day I'm talking to very  
2       bright, intelligent people who work hard and want to  
3       solve problems.

4                   And so it has been the -- just the plethora  
5       of issues to deal with over many different arenas,  
6       whether it be medical or commercial or academic, spent  
7       fuel. I mean, the broad spectrum has just been  
8       absolutely rewarding, and I wouldn't trade it for the  
9       world.

10                   COMMISSIONER SVINICKI: All right. Thank  
11       you. Thank you, again, for your service.

12                   Thank you, Mr. Chairman.

13                   CHAIRMAN BURNS: Well, thank you all for  
14       your presentations. Do my other fellow Commissioners  
15       have any --

16                   COMMISSIONER BARAN: Could I just ask one  
17       more question of Larry before we lose him? Not that  
18       we're going to lose him in five minutes, but I --

19                   CHAIRMAN BURNS: You can ask Jack because  
20       he's over his time, but --

21                   (Laughter.)

22                   COMMISSIONER BARAN: Well, after 34 years,  
23       the last question you get should be something really  
24       monumental and memorable, something like the question  
25       that Commissioner Svinicki just asked you. But,  
26       instead, you are going to get this.

1 (Laughter.)

2 This is really just more a factual question  
3 that I wanted to ask earlier and didn't get a chance to.  
4 How does the average radioactivity of the  
5 greater-than-Class C inventory compare to the  
6 transuranic waste being disposed of at WIPP?

7 MR. CAMPER: The radionuclides or  
8 radioactivity itself is very similar, but the  
9 concentrations are much greater on the non-defense  
10 GTCC. Big numbers. In fact, a Sandia inventory report  
11 provides the concentrations of WIPP waste. For a  
12 handful of radionuclides, the NRC staff compared the  
13 GTCC inventory and volume concentrations to the current  
14 WIPP concentrations.

15 For all isotopes, the average GTCC  
16 concentrations are 50 times or more, sometimes up to  
17 1,200 times higher, except for cesium-137, which the  
18 GTCC concentrations would be approximately equal to  
19 remote-handled TRU waste at WIPP. So while the GTCC is  
20 radiologically similar in terms of isotopes, it is much  
21 more concentrated, although it does have a broad range  
22 of concentrations ranging from reactor internals to  
23 contaminated clothes.

24 COMMISSIONER BARAN: Okay. Thank you.

25 CHAIRMAN BURNS: Well, thank you all. And  
26 I want to add my appreciation for Larry's service over

1       the years. It was always a pleasure for me when I was  
2       in the General Counsel's Office to work with Larry on  
3       some of these issues, as well as now -- now that they  
4       come back.

5                   So I wish you well. As I would say to my  
6       French friends, bon voyage, bon courage.

7                   And, with that, we're adjourned.

8                   (Whereupon, the above-entitled matter went  
9       off the record at 11:55 a.m.)

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