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PUBLIC WEBINAR TO DISCUSS THE DRAFT REGULATORY BASIS
FOR THE DISPOSAL OF GREATER-THAN-CLASS C (GTCC) AND
TRANSURANIC WASTE

THURSDAY,
AUGUST 22, 2019

ROCKVILLE, MARYLAND

The Meeting convened via teleconference and webinar at 1:00 p.m. Eastern Daylight Time, Sarah Lopas, Facilitator, presiding.

PRESENT
SARAH LOPAS, Facilitator
DAVID ESH
PATRICIA HOLAHAN
STEVE KOENICK
TIM MCCARTIN
CARDELIA MAUPIN
FRED SCHOFER
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MS. LOPAS: Hi, good afternoon, everybody.
Welcome to the Nuclear Regulatory Commission's public webinar on the Draft Regulatory Basis for the disposal of greater-than-Class C and transuranic waste.

My name is Sarah Lopas and I'll be facilitating today's webinar. In just a moment I'm going to review our short agenda and the logistics of today's webinar, but I do want to first hand the meeting over to Patricia Holahan, or Trish Holahan, who is the Director the Division of Decommissioning Uranium Recovery and Waste Programs, for our welcome. Trish.

MS. HOLAHAN: Okay, thank you very much. Good afternoon, I would like to thank you for participating in today's webinar. I'm Trish Holahan, the recently appointed Division Director of the Division of Decommissioning Uranium Recovery and Waste Programs, as Sarah mentioned, in the Office of Nuclear Material Safety and Safeguards.

This organization led the development of the Draft Greater-Than-Class C Regulatory Basis, which is a tool that the NRC uses to examine the technical, legal, policy, and administrative components of a
regulatory issue, while considering whether enter the
rulemaking stage. In addition, the information in the
Draft Regulatory Basis should be considered
preliminary.

With me in the room are various folks that
support us. Steve Koenick, the Branch Chief of the
Low Level Waste and Programs Branch. And speaking
will be Cardelia Maupin, the senior PM for the
Regulatory Basis. And also Tim McCartin, a senior
level advisor for performance assessment.

Because various disciplines were needed to
examine the GTCC, greater-than-Class C waste disposal,
the working group assigned this task consists of
representatives from various organizations within NMSF
and across the NRC, which include the Risk and
Technical Analysis Branch for performance assessment
and the decommissioning group. The NMSS Division of
Rulemaking for cost analysis. And the senior PM, Gary
Comfort, was also instrumental.

The Division of Materials Safety,
Security, State and Tribal Programs, the Agreement
State and tribal aspects. The Division of Spent Fuel
Management, performance assessment and criticality
safety analysis. The Office of Nuclear Security and
Incident Response for the security and safeguards
issues. And also the Office of General Counsel for legal and policy issues.

   In addition, contractual support was provided from the Center for Nuclear Waste Regulatory Analyses Southwest Research Institute in San Antonio, TX.

   As background information, in 2018, the NC issued a Federal Register Notice and held two public meetings seeking stakeholders' input relative to the identification of potential issues associated with GTCC waste disposal. These activities, along with the comment letters received in response to the Federal Register Notice, helped to inform the Draft Reg Basis, as well as other factors.

   The NRC staff looks forward to discussing the Draft Regulatory Basis with you at today's webinar. And at that point, I'll turn the meeting back over to our facilitator, Sarah Lopas.

   MS. LOPAS: All right, thanks, Trish. So the purpose of today's meeting is, as Trish mentioned, is that we're here to answer your questions on the preliminary findings and discuss Draft Regulatory Basis for disposal of GTCC and transuranic waste.

   I do want to point out that we are in the middle of a 60-day public comment period on this Draft
Regulatory Basis document, and that public comment period ends on September 20. But I want to be clear that staff is not accepting comments today during this meeting.

So Cardelia is going to discuss during her presentation how you can submit your written comment. So just to be clear, what you say today is not going to go on the record. The purpose of today is to discuss and ask questions of the staff.

I will say that Cardelia and Tim are going to walk us through their presentation, their slide set that we're going to go through on the webinar. And then we'll be opening up the bridge line one by one to answer your questions. So you'll be able to answer questions over the, or ask questions over the phone.

And you can also type your questions using the question function in the webinar. I'm happy to read aloud your questions for the staff to answer. And when we get to that point I'll explain a little bit more, but that'll be after the staff presentation, after Tim and Cardelia present.

And then before I hand it over to Cardelia, the last thing I want to point out is that if you're on webinar, I have attached a couple handouts to the webinar that you can download.
So I have attached a PDF copy of the slides, so you can download a copy of the slides. And I've also attached a copy of the actual Draft Regulatory Basis that you can download as well.

So with that, I think I'm going to hand it over to Cardelia. And please send me a note via the webinar if you have issues hearing us. We did have to make a last minute room switch, so the audio might not be as great as we want, but we're going to try to make sure that Tim and Cardelia speak up.

MS. MAUPIN: Okay, thank you so much, Sarah. It's my pleasure to talk to you today about our efforts regarding GTCC and transuranic waste.

If you've ever been at the NRC complex or visit our website or been in one of our public meetings, you might have heard of our concept of our principle of good regulation. And one of our principles of good regulation is that nuclear regulation is the public's business and it must be transacted publicly and candidly.

So as you look at slide 2, and at the purpose of this meeting, that is what we are walking into today, one of NRC's principles of good regulation. We believe that the public must be informed about and have the opportunity to participate
in the regulatory processes as required by law and in
good public interest.

Today we're going, you're going to have
the opportunity to participate and get involved as the
NRC continues its efforts to develop a Regulatory
Basis for the disposal of greater-than-Class C waste.
In moving forward, I will not be saying GTCC and
transuranic because what we've seen is that in many of
the GTCC waste streams that transuranic waste is a
subset of GTCC, too.

During today's meeting the NRC staff will
describe the background and considerations in the
Draft Regulatory Basis and give the public an
opportunity to ask questions about the document. We
believe that through these interactions, we should be
able to assist you in the submission of your comments
on the draft regulatory program -- on the Draft
Regulatory Basis.

Furthermore, today's meeting supports
NRC's openness strategy. As I said earlier, the NRC
is committed to public and other stakeholder
participation in its decisionmaking processes. As
such, we are committed to transparency, participation,
and collaboration with the public and various other
regulatory -- and our various other stakeholders and
regulatory partners.

Finally, today's meeting supports NRC's cumulative effects of regulation initiative in that the NRC encourages stakeholder participation early on in any potential regulatory change in order to assess the potential challenges that that change could have on licensees, Agreement States, or other impacted entities. Next slide please.

Now we are on slide 3. On slide 3, we're going to talk about low level waste as it is defined by NRC regulations in 10 CFR Part 61. We will begin by defining the concept of GTCC under this framework.

Firstly, the Low Level Waste Policy Amendments Act of 1980 defined low level waste as basically as what it is not. It is not classified as high level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material, as defined in Section 11(e)(2) of the Atomic Energy Act.

The first time ever that low level waste was defined in law was in this 1980 law. In addition, after the law was passed, the NRC developed its regulations for low level waste disposal in Part 61, which is entitled the licensing requirements of land disposal of radioactive waste. In Part 61, in Section 61.55, it contains the first ever classification
system for low level waste. And that is as Class A, B, or C.

These groups are based on the radiological hazards depending on the concentration of certain radionuclides. As switched, Class A would be your least hazardous, B would be kind of in the middle, and Class C would be the most hazardous of these three.

So basically Part 61 says that these wastes, A, B, and C, are accessible for near surface disposal under the requirements that are outlined there in Part 61. Also in 61.55 with this classification system, it describes this other waste.

And this other waste that's beyond the hazard of Class C, that waste that is not, the regulations said that that is not generally acceptable for near surface disposal and is for which the waste form and disposal methods must be different and in general more stringent that those described in Part 61.

So the NRC put that regulation in effect. It was in 1982, it was implemented in 1983. And then subsequently in 1985, the Low Level Waste Policy Amendments Act was passed, and it changed the definition of low level waste.

In that practice of this new act, it no
longer said that transuranic waste should be excluded from low level waste. One of the things that this group is going to consider is the addition of this, the definition of transuranic waste to the NRC's regulatory definition in Part 61. And we will get to that a little bit later. So next slide, please.

Currently, this slide, this figure shows that there are four existing low level waste, low level reactive waste disposal facilities that are currently commercially licensed in the United States, all of which are in Agreement States. The first one there being US Ecology in Washington, which takes Classes A, B, and C.

Utah is a whole different one, the one in Clive. It only takes Class A. We have the Waste Control Specialists in Andrews, TX. It also receives A, B, and C. And Barnwell, and the last one's the fourth one being the facility in Barnwell, at Barnwell, SC, which also takes A, B, and C. So currently, all four of the operating low level waste disposal facilities are licensed and located in Agreement States. Next slide, please.

As I said earlier, this whole regulatory framework for low level waste was only developed after the NRC developed its regulations in 10 CFR Part 61 I
1982. So as I said, Part 61 basically has said that material waste that is greater than Class C is not generally acceptable for near surface disposal. And so that's what, a part of our mission with this group is to look at that.

So, but the best report that we have in terms of looking at the types, the quantities, the different types of waste streams have been done by our colleagues from the Department of Energy.

MS. LOPAS: The audio is lost. Hey, Lorraine, are you there, Lorraine, our operator? Yeah, let us know where you lost us here on slide, what I'm showing is Slide 5, three categories of GTCC waste. Can somebody give me some feedback here on slide 5? Back two slides, let's see. It was only gone for about a minute. Okay, maybe start over on slide 5 here. Yeah, the activated, if you don't mind.

MS. MAUPIN: No worries, no worries.

MS. LOPAS: Okay, thank you, everybody. I appreciate it. It was our colleagues at DOE, that's where it was.

MS. MAUPIN: Okay, our colleagues at DOE have, in their environmental impact has greater-than-Class C...
into three categories, which are represented by the
images on this slide. The first one being activated
metals, the internal metal components of reactor
vessels. The second one being field sources that are
used in industrial and medical applications.

And then we have this third, other waste, which is a very broad category that can include a
number of things that might be generated during the
process of decommissioning a facility.

So I would like to go to the next slide.
Okay, now on slide 6 we're going to talk about GTCC
waste disposal has been assigned a federal
responsibility. I mentioned to you earlier the Low
In that legislation, it said a number of things about
greater-than-Class C.

Basically, it said that greater-than-Class
C disposal is a federal responsibility, in that the
NRC is to license and determine that a facility is
adequate to protect the public health and safety. In
addition, the law assigned requirements for DOE. In
that law, DOE was directed to develop recommendations
and options for the safe disposal of all greater-than-
Class C waste, which they completed in February of
1987.
Basically, about 20 years have passed and there has been, we have the Energy Policy Act of 2005, which is basically designed to get some more traction on this issue of greater-than-Class C and a facility where it can be disposed of. And in that law, some 20 years later, a number of actions were assigned to DOE.

Basically, the Congress said DOE, you're responsible for completing activities needed to provide a GTCC waste disposal facility. And in response, DOE in February of 2011 completed a draft Environmental Impact Statement regarding what they call GTCC low level radioactive waste and GTCC-like waste.

And you might be asking what is GTCC versus this GTCC-like that DOE was talking about in its EIS? Basically, GTCC that is licensed and generated by NRC and Agreement State licensees is considered what we call GTCC in the DOE's report.

There's other ways that might be generated under DOE's activities that has characteristics similar to what we've described as greater-than-Class C waste and is -- it's non-weapons or non-defense generated. That's probably one of the keys there, non-defense generated, and it is generated by, under DOE activity.
Then in February of 2016, DOE finalized its EIS on greater-than-Class C disposal. And this has come to be one of the most comprehensive information that we have in terms of, as I said, greater-than-Class C waste. And in addition, the Energy Policy Act of 2005 told DOE that they are to come up with a report and provide to Congress on various disposal alternatives for greater-than-Class C waste, which DOE completed in November of 2017.

And the last thing there, the Energy Policy Act that, after submitting that report, they are to await congressional action. At present, no congressional action has been taken, so we are still in that, at that level right now. Next slide, please.

So now let's get into what, how the NRC is in the issue. And then we'll get to why we developed the Draft Regulatory Basis. In January of 2015, Texas submitted to the NRC a letter requesting clarification on its authority as an Agreement State to license disposal of greater-than-Class C waste.

Texas inquired because the Waste Control Specialists, as I mentioned earlier, which are in Andrews, TX, have petitioned Texas to remove its prohibition on the disposal of greater-than-Class C waste at its facility, and these prohibitions are
contained in Texas's regulatory program or laws and regulations.

When we say an Agreement State, Agreement State is a state that has entered into an agreement with the NRC whereby we would relinquish portions of our authority derived under the Atomic Energy Act and that states would exercise that authority. So that is why Texas asked us that question.

In response to the letter from Texas, the NRC staff developed, in July of 2015, SECY-15-0094, which discussed the historical and current issues relative to the disposal of greater-than-Class C. This was an effort to answer the letter from Texas. The Commission then, in December of that year, of 2015, responded to the SECY paper and provided some directions to the staff.

Basically, they said we want you to prepare a regulatory basis for the disposal of greater-than-Class C waste through means other than a deep geologic disposal. And this was to be done after the completion of the Part 61 rulemaking.

In addition, the Commission said, okay, the Low Level Waste Policy Amendments Act no longer excluded transuranic waste from the definition of low level waste, so we want you to address the definition
of transuranic waste in your, in the Reg Basis and in Part 61. So that's part of our effort as well.

Subsequently, in October of last year, of 2018, the Commission directed the staff to no longer couple the effort of developing this Regulatory Basis with Part 61. They said we want you to move forward because we want to see if there any regulatory or issues associated with this issue of greater-than-Class C that we need to address, and we want to get early involvement. We want to get our stakeholders involved in this issue as soon as possible.

So that's another reason why we are having this webinar today. Next slide, please. So that gets us to our, in July of this year, July 22, we published that Draft Regulatory Basis, and we are inviting comments. Then we're, as I said, having this webinar today.

In addition, we have a public meeting that is planned on August 27th in Austin, TX. As Sarah reminded everyone, there is a 60-day comment period for, on the Draft Regulatory Basis, and that ends on September 20. So you want to keep that in mind.

We really welcome your comments in writing and we look forward to your help on this issue. Now I'm going to turn it over to my colleague, Tim.
MR. MCCARTIN: Hello, and I'll be starting on slide 9. And in the next few slides I hope to give a summary of how we analyzed the near surface disposal of greater-than-Class C waste and what our preliminary findings were.

And as Cardelia mentioned, we got our inventories from DOE's final Environmental Impact Statement for greater-than-Class C waste. As she stated, in that EIS you'll see the three categories, activated metals, sealed sources, and an other category. What you won't see is we took the information in that report and we divided it into seven very specific waste streams.

We did those 17 waste streams because they identify very distinct streams of the greater-Class C waste that have among very specific waste form and inventories associated with them. And in looking at the hazards of the disposal of the waste, it was important to keep things separate in that way.

And you'll see that as I go through my talk, but that's why there are 17 waste streams in our Regulatory Basis. You will not -- you'll see the information related to those waste streams in the FEIS, but DOE did not break them out in that
particular way.

We considered three alternatives for implementation of disposal of greater-than-Class C waste under 10 CFR Part 61. The first one is no regulatory change. And let me just explain that briefly, what that means currently.

In Part 61, the Commission can decide on a case-by-case basis whether to allow disposal of greater-than-Class C waste in somewhere other than a geological depository. And so that would still remain in effect, and that would mean someone would need to come in and to ask the Commission to act on an application.

The other would be we don't make regulatory changes but we issue guidance on what would be expected in any type of application for greater-than-Class C waste disposal. And what types of criteria and things we would be looking for accepting such applications.

And the third is actually do a rulemaking, which could also include guidance, like we actually would changes Part 63 and put specific requirements in 10 CFR Part 61 for the disposal of greater-than-Class C waste in the near surface.

I'll give the results up front and you'll
see how that plays out in the later slides, but we did find the majority of the greater-than-Class C waste in DOE's Environmental Impact Statement was potentially suitable for a near surface disposal and was approximately 80% of the overall volume of waste.

Of that waste that we found potentially suitable, most, approximately 95% of that volume, was potentially suitable and could be regulated by an Agreement State. And in terms of the, if I go to slide 10, you'll see there's a pie chart that is approximately 12,000 cubic meters of greater-than-Class C waste.

And there's two particular categories of it, greater-than-Class C and greater-than-Class C-like, that Cardelia spoke. And then we also have, in DOE's FEIS, they had a designation of category 1 and 2, which was existing, what we would call existing.

And it was waste that would be existed by current licensed activities that are currently going on or going on in the future. But there's been a decision that these activities would occur. That's what we would call existing waste, it either exists today or will, we know it will be existing in the future.

The second is potential waste, and that's
volcanism or activities that no decision has been made
to undertake these activities or license these
facilities. But if they did go forward, it would
develop these types of waste. And we can see it's
approximately half and half. Half is approximately
existing, half is potential.

The best way to give some concrete example
for this is I'll use commercial reactors. They
generate greater-than-Class C waste. It's activated
metal waste, the piping and the reactor internals.
That waste is generated when a reactor primarily is
decommissioned. So there is a little bit that's
generated during the lifetime of the reactor due to
maintenance, but most of it is generated after the
reactor ends its operating license.

That's the existing waste would be for all
the licensed reactors today, most of which is going to
be generated in the future. There also is the
potential for new reactors to be licensed in the
future. There aren't any license facilities
applications there that are being approved, but this
accounts for ones in that future that may be, an
application may be submitted and approved and
eventually it would generate waste. That's potential.

If those facilities are never licensed or
an application is never received, well, that waste
would not be generated. But that's where the 12,000
cubic meters, the total is. And you can see there's
a combination of approximately 50% for each existing
and potential.

There also is the GTCC versus GTCC-like.
And you can see it's approximately there. It's more
a quarter of the waste is the greater-than-Class C-
like waste versus approximately three-quarters is the
greater-than-Class C waste.

Going to the next slide, and this probably
shows the largest single reason for keeping our 17
waste streams, and it has to do with the amount of
transuranic radionuclides that are present in the
waste. And there I have five bore charts. And you
can see at the high end it's greater than 10,000
nanocuries per gram, and at the lower end it's less
than 10 nanocuries per gram.

So there is a large spread in the amount
of transuranic radionuclides in these waste streams.
And there was a desire to keep that separate. Those
are very distinct quantities, and they have an impact
on the hazard analysis. And so that is really
probably the best rationale I will say for explaining
why we developed these 17 waste streams.
Going to the next slide, that would be slide 12, in terms of doing the analysis, there were a couple things that need to be assumed for a technical analysis. In terms of the disposal facility design, as we said, we were talking about near surface disposal. This would be in the top 30 meters of the land surface.

We also looked at, on average, a disposal thickness of one waste container. And I will say where that's important is in the intruder analysis, especially a drilling intruder where you've drilled through something. Well, if you drill through one container, you bring up so much waste. If you actually have two containers, twice as much. Three containers -- so it is a, you can see the impact.

Things would get twice as, depending on the thickness of the waste. We chose on average one. We did vary some things to get a sense of the impact. But that is one of the assumptions that's important to that analysis, especially for the analysis of the intruder.

In terms of the exposure assessment, we did as we could account for the waste form. And the best example there is the activated metal waste from commercial reactors. Generally, it's stainless steel.
Well, stainless steel does not corrode very easily, it doesn't, you know, it doesn't flake up in the air and create things that, a release in the air. And so we assumed a low degradation rate of stainless steel as for the exposure assessments.

And then a number of the other assumptions we made were consistent with the analyses that were done in the early 1980s that supported that classification tables in 10 CFR Part 61, the Class A, B, and C that Cardelia talked about. We want to have analyses that were somewhat comparable to what was done back then.

Going to the next slide, 13, in terms of the hazards, what were the kinds of things we were looking at. And first there's, you have actually have to receive the waste to the facility and you handle it before you put it in some type of disposal unit. Well, when you're handling these packages, certainly for the workers, a large amount, I think approximately at least a third maybe to a half of the waste in DOE's FEIS, its Environmental Impact Statement, was what was called remote handled.

Well, remote handled meant the direct radiation on the waste package was high enough that you had to handle the packages remotely. That's a
worker hazard thing because they get close to the packages. Offsite person, you're not, no one should be getting close to these packages, and so that really isn't an impact.

Now, the other part is there's a consideration of actions. What happens if there's a fire, and the fire has a potential to release certain materials into the atmosphere, and that can get to an offsite individual?

Now, having said that, there's something where once again the activated metals from commercial reactors, well, stainless steel doesn't burn. And so the impact of fire on some of the nuclides associated with activated metals is greatly reduced because it doesn't really burn.

Then there's offsite releases, and that's the eventually whatever you dispose of. There is radioactive decay that occurs, but there will be some releases from an underground facility over time. There are some mobile long-lived radionuclides in this waste, and eventually that could make it to a pathway that could be causing exposure to an offsite individual.

For those familiar with technetium-99, it's a very long-lived radionuclide in some of the...
waste, and it actually is very mobile in the underground system. And it is, there is a lot of retardation mechanisms that hold up radionuclides, a large number of radionuclides, from moving quickly with water underground. Technetium is not one of those radionuclides.

Plutonium is one that actually is, like one I call sticky. It sticks to the dirt, to the ground and doesn't transport as quickly underground. And so those are some of the things you account for in the offsite releases.

And then there's the intruder exposure, someone who actually -- and two scenarios were evaluated. One is an excavation scenario where we're talking many years on the future and someone actually excavates for a home and actually doesn't realize that they're digging into a waste trench. and they have an exposure due to that.

There's also a drilling scenario. Someone puts in a drill and they're drilling down potentially for groundwater for a family well or some other type of well, and they intercept waste that way. I will say for the excavation scenario, essentially none of the waste streams were potentially suitable.

And so you'll see in our Reg Basis a
requirement that we believe Part 61 should be revised, if it was to be revised, to require the depth at least a minimum of five meters below the ground surface and a 500-year intruder protection barrier.

Now, where that relates to the current regulation, Class C waste is required to be either five meters below the land surface or a 500-year intruder barrier. We're requiring both for greater-than-Class C waste, but the excavation scenario we looked at a little bit, and it was going to be an extremely difficult thing to comply with, say a 500 millirem dose, which is the dose limit that was used when 61 was first developed for the intruder.

The next is the drilling scenario, and that is drilling through a container. Brings up less waste than excavation. And as I said, we did assume on average it was one package. If it was two packages, it would be twice the impact, and so you can get a sense of that.

In terms of going to the next slide, slide 14, what's the, what was the perspective that we got in going through these analyses? As I said, most waste is potentially suitable for near surface disposal.

I think the key phrase there is
potentially suitable. There would need to be analysis done to look at the specific characteristics of the site you're at, how much water is infiltrating the land. There are many aspects. The characteristics of the geology.

And then, very importantly, the inventory. What exactly is being disposed of there? We evaluated each of these waste streams individually. There are 17 of them. If they're all at one place, what does that mean? And so, as I said, most were potentially suitable, but an analysis would need to be done.

Secondly, the transuranic radionuclides presented issues. And there were concerns with release of plutonium from an operational fire that will get offsite. Consideration of fissile material during operations. The NRC has certain limits for when you have material like plutonium, how much you can have there and whether there's potential for an inadvertent criticality.

In terms of the intruder excavation scenario I mentioned, the excavation scenario we said if you go greater than five meters, the excavation scenario was not deeper than five meters, so that was removed. And then the intruder driller scenario, plutonium also, it was a primary aspect there.
And if you remember back to my initial bar chart, you can see the transuranic radionuclides buried in these waste streams from greater than 10,000 nanocuries per gram to 10, less than 10 nanocuries. So this is widespread. Once again, folks, you need to do the analysis, you know.

And most importantly, like I said, we rely primarily on the inventories in DOE's Environmental Impact Statement. Any application, any licensee would need to justify and explain and describe what inventory they would disposing. And that's an important part of the analysis that would be presented in any application for near surface disposal of greater-than-Class C waste.

With that, that gets through our technical analysis. I'll turn it back to Cardelia for describing how you could provide comments, written comments to the NRC.

MS. MAUPIN: Okay, thank you so much, Tim. Thank you for that great presentation.

On the next slide, you would see that it references our docket and where you can go, and other sites where you can go to get additional information on greater-than-Class C waste. In addition, I'm providing my contact information, along with Tim's and
our colleague Gary Comfort, who have been working on this project intently.

The next slide is, talks about how to provide comments. And as I said earlier, all the information on this issue and nuclear regulation is not contained within the walls of NRC. That's why we do public meetings and stakeholder outreaches like we're doing today. So I strongly encourage you to submit all your comments in writing, in accordance with the direction in our July 22 Federal Register Notice.

And all of your written comments would be considered by us as well, you know, on this issue. So we provide a number of ways that you can submit your comments, and they're described here on this slide. You can even hand carry them if you would like to come visit us. Mail, email, fax. So we have a number of ways that you can submit your information.

But when you submit your information, as we'll turn to the next slide, please make sure that when you're submitting your comments, that you include the docket ID there, NRC-2017-0081 on all of your correspondence. And once again, I would like to emphasize that our comment period ends on September 20. And with that, I think we can open it up for
MS. LOPAS: All right, everybody, this is Sarah Lopas again. I'm going to facilitate us through the questions. So, a couple ways that you can ask your questions. And I already do have some comments and questions submitted by other webinars.

So I'll start by reading those, but if you want to ask a question and get on the phone line, you're just going to press star 1, and our operator's name is Lorraine, and Lorraine's going to get some info from you and she'll open up the bridge line for you so you can ask a question that way.

So go ahead and press star 1. I'm sure you've already been through this drill a bunch of times with NRC, star 1 to ask a question on the phone, or just go ahead and type a question on the webinar. I will say that if your question is really super duper long on the webinar, you might just want to call it in, because it gets tough for me to follow it on this webinar.

And I do want to point out that this call is being transcribed by a court reporter. So again, these are formal comments on the docket, but we wanted to make sure that we got a good record of today's call. So please, start by introducing yourself. And
the same thing with the NRC staff, just when you start
to answer a question just introduce yourself. And
then speak clearly so our court reporter can get it.

    So while I wait for folks to go ahead and
get their questions on the line by pressing star 1,
I'll start with my first question. And I think maybe
Tim would answer this one, maybe. Tim was talking,
you were talking about that pie chart, it said,
Question on the, I guess this pie chart, are both
existing and potential GTCC in the pie chart included
in that 12,000 cubic liters total?

    MR. MCCARTIN: Yes.

    MS. LOPAS: Okay.

    MR. MCCARTIN: Yes, the 12,000 includes
both existing and potential.

    MS. LOPAS: Okay.

    MR. MCCARTIN: And the percentages in the
pie chart are a percentage of that overall total,
which is approximately 12,000 if you actually do the
math. And I won't try to do it in my head, it's not
quite 12,000 but --

    MS. LOPAS: Right.

    MR. MCCARTIN: Yeah.

    MS. LOPAS: Okay, excellent. And I just
want to remind folks it's not the handraising function
that you're pressing here on the webinar, it's the question function. So I can't do anything with the handraising, so you have to type your question in. I just want to make that clear on the webinar. Or press star 1.

So I want to go through this next comment here on the webinar. It says, this is from Pennsylvania, from Rich Janati in Pennsylvania. It would be highly desirable for the NRC to extend the public comment period. So just note that.

And then the next question I have here is a little bit of a long one, so I'm going to try to read it. It's from Jeff Burright. The DOE and NRC seem to be building off of each other's efforts on this issue, given that the NRC Regulatory Basis uses the GTCC EIS and considers DOE's GTCC-like waste.

How might this basis be affected by the new high level waste definition interpretation by DOE, which could result in a larger volume of GTCC-like waste than was analyzed in the EIS?

For example, the high level blasts coming from the Hanford waste treatment plant may be GTCC-like instead of high level waste. Plus, the cesium strontium capsules at Hanford, cesium ionic stage columns associated with the TSCR system and the German
MR. MCCARTIN: Okay, yes, this is Tim McCartin. And I would maintain that our Reg Basis has been developed in a way that's independent of any potential change of definition. And by that I mean what we are trying to say in the Reg Basis is that there's a number of things that are important.

But whatever application for near surface disposal is submitted will have to describe the inventory that they're going to dispose of and the site characteristics of whatever, and facility design they have and how that would comply with the regulations.

And so I will say let's, for sake of discussion, let's say there was a change in the definition and there was another 4,000 cubic meters of potential GTCC or GTCC-like that could be considered. I would say, well, it could be considered. But as we did in our Reg Basis, when you analyze it, it may be allowable, it may not be.

You're going to have to, any site will have to analyze everything they're receiving. And without knowing exactly waste form and the inventory, we can't say whether something is potentially suitable or not. But you can see the kinds of analysis that
would need to be done to demonstrate that it's safe. And I think that -- our Reg Basis puts forward an approach for analyzing waste streams that isn't dependent on a particular definition, if that's helpful.

MS. LOPAS: I want to, we have a number of questions on the webinar, but Lorraine, I wanted to check on the phone. Did anybody press star 1? Lorraine, are you there?

We may have a missing operator. Lorraine, are you on the line or any operator?

OPERATOR: Can you hear me?

MS. LOPAS: Yes, we can now, yeah.

OPERATOR: Okay, I'm sorry, my bad, I was here. We do have questions in the queue.

MS. LOPAS: Okay, great, go ahead, we'll take those.

OPERATOR: Barbara Warren, your line is open.

MS. WARREN: Oh, okay, good afternoon. My name's Barbara Warren, and I want to, I was trying to follow that last description, but I'm sort of missing it. Are you applying a siting criteria and regulations to this disposal facility design or not?

MR. MCCARTIN: Yes, this is Tim McCartin
again. Well, currently, there are dose limits for the offsite person. There was a 500 millirem dose limit for, used for analyzing the protection for the intruders. And what I'm suggesting, that's how we analyze the hazards.

Now, in addition there are other things like operational accidents, handling accidents that would have to meet the dose limits for worker safety, offsite exposure. So there's a variety of things, and --

MS. WARREN: No, I'm talking about things just pertaining to the location of the site. For example, over an aquifer, a drinking water aquifer. Or you know, a situation where you have a hillside where there's no stability for the ground that you would be putting the landfill into. Things like that.

MR. MCCARTIN: Okay, let me, Dave Esh will talk to some of the requirements that are currently in Part 61 for land disposal that I think you're concerned with.

MS. WARREN: Yes, yes, that's what I'm concerned with.

MR. ESH: Yeah, I think we better understand your question now. It's a good question. All the siting requirements that are in 10 CFR Part 61
would still also apply to greater-than-Class C waste disposal. And those include things like, that you were just talking about. Like there's a requirement that a site can't be in an area of high geotechnical or geomorphic instability.

That'd be things like erosion and landsliding and deformations. Or in areas with high seismicity or volcanism. And then there's a bunch of criteria associated with water. Some of those are exclusionary type criteria, and then some of those things that must apply for a disposal site.

So for instance, you can't dispose of waste in the zone of water table fluctuations, for instance, just as an example. So all of those criteria would also apply for GTCC waste disposal.

MS. WARREN: Okay, thank you.

MR. ESH: Yup.

MS. LOPAS: All right, Lorraine, who do we have next up on the phone?

OPERATOR: Our next question comes from John Greeves. Your line is open.

MR. GREEVES: Yes, this is John Greeves. Take it back to slide 3. Can you hear me?

MS. LOPAS: Yup, we can.

MR. GREEVES: Okay. On slide 3, yeah.
MS. LOPAS: And this is, is this the Part 61 low level waste disposal slide with the circle?

MR. GREEVES: Yes.

MS. LOPAS: Okay.

MR. GREEVES: And this relates to the definition of low level waste. I'm having trouble understanding why you show transuranic inside and outside the waste classification. As you stated and you're aware, the Amendments Act wiped out the exclusion of TRU.

My understanding, legislation trumps any legislation. And the question is why not just conform to the Amendments Act and simply basically conform with the Amendments Act? I'm having trouble why you were, you know, I don't know what you're doing, but it doesn't sound like you're conforming with the Amendments Act. Do you understand the question?

MS. MAUPIN: I absolutely, John, understand your question. But the problem is, John, that the regulations in Part 61 were never revised to put transuranic waste into the definition of low level radioactive waste that is described in Part 61. We have, we're still hanging on to the Low Level Waste Policy Act of 1980 definition.

So one of the things that the Commission
has charged us to do is to no longer exclude transuranic waste from the definition of low level radioactive waste. Basically, you are absolutely right, we need to update our regulations to conform with the most recent law that was passed in 1985.

MR. GREEVES: I don't think you actually have a choice. And it's coming across like you're weighing whether you should follow --

MS. MAUPIN: If that's what you heard, I do apologize, but that was not the message I was trying to articulate. What I was saying, we're behind the times. We need to update our regulations to be in time with the last law. And that's why I just, I'm sorry the diagram was confusing.

But, and one other thing is that I did it, that we did it that way because currently there are some levels of transuranic radionuclides that are in our table, you know, in Part 61.

But this overall concept of transuranic waste needs to be updated in our definitions in Part 61.2 to clearly conform with the Low Level Waste Policy Amendments Act of 1985. You are right, we should update it, and that's what we are, part of this effort. I hope that helps.

MR. GREEVES: Cardelia, your statement is
very clear, the written product is not. So I'm glad to hear your answer, and I look forward to memorializing that. Thank you very much.

MS. MAUPIN: Thank you.

MS. LOPAS: Okay. Just a reminder to press star 1. And I will say do the quick learnings. I'm getting some feedback that somebody has pressed star 1 multiple times. So maybe we might have many people on the line. How many folks do we have on the line waiting to ask a question, Lorraine? Can I ask that?

OPERATOR: We actually three.

MS. LOPAS: Okay.

OPERATOR: But I called out to their line and they're not responding. But I actually have one person, Diane D'Arrigo. Her line is open.

MS. LOPAS: Okay.

MS. D'ARRIGO: Hi. So I am following -- the concentrations in the 10 CFR 61.55 tables have transuranics in them, transuranics with half-lives longer than five years. The transuranic concentrations are already embedded in the Class A, B and C, well, actually A and C.

So I don't really get why you're saying that you don't have to comply with those. Do you
really think that Congress knew what it was doing if it was adjusting concentrations for plutonium isotopes and transuranics?

MR. MCCARTIN: Well --

MS. D'ARRIGO: The problem that has been -- and I'll just say one more thing about -- as someone who has been tracking this since 1980, the public interest groups, including the Sierra Club, have a position calling for redefining low level waste, or waste that goes into 10 CFR 61 facilities to not be hazardous longer than the institutional control period. And the institutional control period is 100 years.

So the analyses that are being done that allow for longer lasting waste to go into these facilities at higher and higher concentrations are putting the public at danger. And I just strongly oppose it.

And I would like to -- I mean, we've been fighting this issue with the NRC for a long time with the depleting uranium issue. And we've got a similar situation with really long lasting radionuclides that you're saying are going to go into still what are considered unlined soil trenches legally. That's one comment on that.
MR. MCCARTIN: Well, one quick thing I think that might have been misunderstood. There is no suggestion that we are going to change the concentration limits in the tables in Part 61. So the fact that greater than Class C, if you're over 100 nanocuries per gram, you're greater than Class C. And so despite the definition, you still now would have to comply with whatever approach is taken for the nearest disposal of greater than Class C.

And as you saw in our analysis --

MS. D'ARRIGO: How does your analysis comply with an approach? I don't understand. Could you describe that?

MR. MCCARTIN: Well, for our reg basis --

MS. D'ARRIGO: Yes.

MR. MCCARTIN: -- we have identified that certain concentrations, the two waste streams that we did not find potentially suitable were ones that were over 10,000 nanocuries per gram.

The other ones -- regardless of how transuranic waste is defined, once your above Class C, which is 100 nanocuries per gram, you are now into whatever approach we end up with for evaluating the safety of greater than Class C disposal.
And as I mentioned early on, there were three alternatives that were considered. One would be no action. And, currently, Part 61 allows someone to come in and ask for the Commission to approve it on a case-by-case basis.

So just the other was we might develop guidance or actually change the rule. Now in the right basis, we have, and it's preliminary, we're waiting for -- well, we're seeking comment, but as I noted there would require greater in Class C to be no less than 5 meters below the surface and a 500 year intruder barrier.

The analysis would still have to show that it would meet a 500 millirem dose for the intruder. The offsite exposure -- there's a lot of other things. Dave identified other aspects of Part 61 that all come into play.

So, you know, I wouldn't want -- I think you were thinking it would change the definition of transuranic waste, that it would automatically be allowed. And no, all the -- once you're above 100 nanocuries per gram for the transuranics, you are in the greater than Class C. And the analysis and the evaluations would need to be done to show that it is safe. That's what I meant by the process.
MS. D'ARRIGO: If it's already requiring a case-by-case analysis, then what you're wanting to do now is make it more generic. I mean, you already can put greater than C into these facilities if you do the analysis on a case-by-case basis. It's already being --

MR. MCCARTIN: The Commission can approve that, yes, on a case -- yes, and that's why that's one of the alternatives. We don't have to change anything. We can still do this on a case-by-case.

Now some might argue that from a regulatory stability and clarification standpoint, is it better that we actually change the rule and say these are the things that will be required for any greater than Class C near surface disposal?

That's why we're out for public comment. That's why these different alternatives exist. We're interested in, like I said, it's preliminary. It's giving comment and --

MS. LOPAS: Great. I'm going to -- since we've gone through three folks on the phone, I'm going to go through -- because we've have a number of questions on the webinar. So I'm going to read through a couple of the questions on the webinar.

The first one is from Melanie Snyder and
it asks are all the GTCC activated metals stainless steel?

MR. MCCARTIN: In terms for commercial reactors, the vast, vast majority is stainless steel. And I have to go back and check. There is a little activated metals associated with the West Valley Demonstration Project. And I'm not certain it is stainless steel, but it obviously is metal.

We did not account for it being stainless steel in our analysis. But obviously that's something if someone had more information on that particular waste stream, it could be accounted for. But for the reactors -- there's two parts to be aware of for the activated metals.

There is surface contamination, and there's contamination that goes throughout the metal. For the reduced source term, it's the portion that's throughout the metal because that requires the metal to completely corrode. There is some limited surface contamination. And that was available from the beginning for release but.

MS. LOPAS: Okay. All right. The next question we have here is a process question. This is from Phil Klevorick. What will be the process and possible timeline after the close of the public
comment period on September 20?

MS. MAUPIN: After we receive the comments, generally we will bin the comments, sort the comments and then look at developing responses to those comments and to see how we need to, you know, re-evaluate the Draft Regulatory Basis and make changes to it.

As a number of people have alluded to, the Draft Regulatory Basis has not received a review and approval by the Commission so it's considered preliminary. And so in terms of process, we would also have to consider what the Commission would like us to do.

MS. LOPAS: Okay. And so for folks on the phone, press star 1. I know those you that have pressed star 1 just hang tight for a minute more. I'm going to go one more question here on the webinar. But we'll get to you on the phone. I promise.

So here's the next question on the webinar. It's from Larry Camper. Given the direction in SECY-15-0094 that if the staff determines that some or all of the GTCC waste is potentially suitable for near surface disposal, the staff should proceed with rulemaking.

In view of the findings of the analysis,
why did the staff not proceed with the rulemaking rather than no recommendation?

MR. MCCARTIN: This is the first step, the reg basis.

MS. LOPAS: Yes.

MR. MCCARTIN: A draft reg basis is the first step in the rulemaking path. And so --

MS. HOLAHAN: This is Trish. And it gets into the cost analysis of the various options so.

MS. LOPAS: All right. So star 1 if folks want to make a comment on the phone. Lorraine, do you have folks that you're in touch with that want to make a comment on the phone?

OPERATOR: Yes. Karen Hadden, your line is open.

MS. HADDEN: Hi, can you hear?

MS. LOPAS: Yes, we can.

MS. HADDEN: Hi. Okay. This is Karen Hadden. I'm in Austin, Texas, and very concerned because Texas is, in fact, being targeted for the final disposal of the entire inventory of greater than Class B waste and greater than Class C in transuranic waste.

This is clear from reading the environmental assessment that followed the
Environmental Impact Statement. And what I learned is that the curies, the 160 million curies, would be more than 28 times what the pit is licensed for at WCS. It's 41 times the curies of the adjacent contact waste facility.

This is a vast increase. And somehow it's expected that our state agency will just wave a wand and say that that's okay. We can just do a license amendment for 28 times more than it's licensed for.

Our governor is opposing this, much to his credit. He opposes an increase in the amount of concentration or radioactivity authorized for disposal in Andrews County.

The canisters would weigh 100,000 pounds each and would be 7 units deep in the federal waste facility starting from 120 feet deep. This is basically shallow burial where the Environmental Impact Statement specifically says on (i)(6) in the introduction that this waste is generally not acceptable for near surface disposal and for which the waste form of disposal methods must be different and in general more stringent than those of Class C.

So we're very, very concerned that this is not adequate. This waste should go into a deep geologic repository, not any shallow waste burial.
anywhere. And I'd like for you to explain how it got changed from even considering to five meters deep because the environmental assessment says one big concern is volatilizing of radionuclides where they could come up through the cover on top of the site and get into the air and therefore the land, water and air could all become contaminated.

How is it that 5 meters deep can all of a sudden be considered viable when it started out being not acceptable for near surface disposal?

MR. MCCARTIN: Well, you raise a number of issues there. I will say first we did our analysis with no particular site in mind. We looked at a range of conditions a range of inventories, and we did the evaluation.

At the NRC, we are not promotional of any particular application. We review an application if someone wants to submit an application and review it against our safety requirements.

And if a particular design site inventory can meet the safety requirements, that is what our review is about. I understand your concerns. And I think all aspects of the releases and what could potentially happen at a particular disposal site would need to be evaluated.
What we try to put forward in our reg
basis, and we certainly would appreciate any comments,
is have we missed certain things that should be done
in terms of safety requirements? Are there any
recommendations that people have that feel that are
needed to ensure safety, we are certainly happy to
hear that.

MS. HADDEN: So thank you for that answer.
I want to point out in terms of safety that this waste
would be going into disposal in an area that is prone
to earthquakes. There was an earthquake, a 5
magnitude earthquake, 19 miles away and even closer
epicenters for lesser earthquakes on the Richter
Scale. There's a lot of them.

And there seems to be no way that we could
monitor what was happening underground. How would we
even know if something was banging around and started
to release radiation? How are we going to see? How
are we going to know what's going on?

I think this is a horrible plan, this
reclassifying waste. I think it sneaks in waste that
should not be coming to Texas. And we're going to
fight really hard to prevent this reclassification
from happening. It doesn't make sense, and it will
create a disaster scenario.
MS. LOPAS: Thank you, Karen. I hope that you submit those comments in writing and maybe you'll see our folks at the meeting next week down in your neck of the woods.

MS. HADDEN: We'll be there.

MS. LOPAS: Excellent. Okay. Lorraine, do we have another person on the phone?

OPERATOR: Our next question comes from Tom (Smitty) Smith. Your line is open.

MR. SMITH: Hi. My name is Tom Smith or I'm better known as Smitty. And I'm representing public citizen. When this was first discussed, the belief was it was going to go to repository.

And most recently, these wastes were target at WIPP. Although there was an unfortunate and preventable accident at WIPP, that site is now open again and accepting waste.

What's wrong with WIPP and why is that no longer being considered? And kind of along with that is the only reason we're looking at it is because the Commission under Rick Perry decided to send you all a letter? Is that what this is all really about, because Secretary Perry, when he was governor was trying to benefit a donor?

MR. MCCARTIN: Well, a couple things. Let
me clarify that WIPP is for defense related waste, and
this is specifically not defense-related waste. And
so, you know, this really isn't. You know, and I
guess that could change, and it could go to WIPP if it
changed the law. But currently that would not be the
case.

I can say in terms of the Commission asked
us to look at this. And we have followed that
direction, and we put this out for public comment. We
believe some of this waste is potentially suitable.

However, as Cardelia mentioned, we are
looking for public comment. We believe we've
described how we analyze things, how we've thought
about this problem and why we think it's potentially
suitable. And we're waiting to get comments.

But the Commission has requested us to
look at this, and we are looking at it. I think,
certainly, there was the letter to Texas that came
into the Commission and was a part of that decision.
It wasn't the only part of that decision.

MS. MAUPIN: And if I could just jump
here. If you have an opportunity and access to the
internet, on DOE's site, there is that November the
17th -- that 2017 report to Congress where they list
various alternatives in terms of GTCC disposal. One
of those is revising the law so it can go to WIPP.

So you might want to look at that report.

It would either go to WIPP or a commercial low level radioactive waste facility. So there are a number of documents there on the DOE that could help you in terms of information.

MR. SMITH: Thank you very much.

MS. LOPAS: All right. Lorraine, how many folks do we have on the line waiting to ask a question?

OPERATOR: I currently have two questions on line. I've called out to their lines. They're not responding.

MS. LOPAS: Okay. All right. Well, we'll let them hang out there for longer. If you're on the phone, you can be up soon but press star 1 if you want to get us on the phone.

So we have a number of webinar questions. So let's just work through these for a little bit.

This one comes from Janet Schlueter. I might be pronouncing -- Schlueter. I apologize Janet. Janet Schlueter. What is the basis for the staff assumption that potential volumes of both categories exceed existing volumes? So this is from those slides, I guess, showing the -- Slides 10 and 11
showing kind of the pie charts and the bar charts.

So the basis for staff assumption that potential volumes of both categories exceed existing volumes. What's the staff basis for saying that?

MR. MCCARTIN: The potential -- these are just the volumes in the Department of Energy's FEIS. And they gave volumes for a variety of waste streams, and they categorized them as, I think it's one and two.

And one was their existing facilities that are licensed. Two are potential ones. And it's just the volumes they gave in the FEIS. We didn't generate them. I can be a little more specific.

On some of the -- for example there's some potential molybdenum-99 for medical isotopes that could happen in the future. There's no decision on doing that. There's other things such as their decisions associated with the West Valley site, that decisions might be made with some of the Commission waste there that -- but no decisions have been made yet.

Those are some of the categories of the potential one in addition to the -- and I'll say it was on the order of 35 new reactors or so to be built in the future that applications are not presently
there.

We accepted the Department of Energy's numbers. We did not second guess these estimates. But, you know, and it is what they turned out to be.

MR. ESH: Janet, this is David. It depends on the particular waste you might be looking at, too. So for instance, commercial reactors the existing is about twice as much as the potential that would come for commercial reactors.

So like what Tim said, depending on what you do with West Valley, that could generate a whole bunch. But it depends on the particular waste stream, how much is potential and how much is existing.

MS. MAUPIN: I would just jump in there and say if Janet, when she submits her comment, if you have better information, better data because I know that you represent the nuclear reactor arena, so if there is better information than what we have, please feel free to submit it as a part of your submission to our comments. We would greatly appreciate any clarifying information you could provide us.

MR. ESH: But I guess one thing I would like to point back, and it gets to a couple of the questions we've had. It was very deliberate that we said potentially suitable because there is uncertainty
in the estimates of what exactly is the inventory for these waste streams. We are using primarily what deal was presented. What the volume is, how much volume might be disposed of at a particular site of what waste streams.

And so there are a variety of combinations that one could come up, some are going to be more difficult than others. And that's why we said potentially suitable. The key is whoever would submit an application, either to an Agreement State or to the NRC, they would need to, I think, have a defendable inventory of the peer accepting what the waste forms are and to support an evaluation of whether it's safe or not.

MS. LOPAS: Okay. I just want to remind NRC folks just introduce yourself before you chime in.

MS. MAUPIN: Okay.

MS. LOPAS: So that leads into our next question pretty well. So this is from Rich Janati from Pennsylvania again. How confident are you that 80 percent of GTCC waste is suitable for near surface disposal and what is this conclusion based on?

Also you pointed out that 95 percent of the 80 percent GTCC that is suitable for near surface disposal can be regulated by the Agreement State.
What's the 5 percent waste of the waste that is suitable for near surface disposal that cannot be regulated by the Agreement State?

MR. MCCARTIN: Okay. Right. And I think I answered some of that question. We have never said it's suitable, potentially suitable. And that was a very deliberate choice. And it depends. Site conditions are different. Inventory is how much of this?

And that's why we said 80 percent was potentially suitable. But that does not mean it is safe everywhere or -- in terms of the 5 percent, where that comes from there are certain limits on fissile plutonium that we have security requirements for the NRC, and it has to do with common defenses security.

And that's something that's reserved for the NRC. And so that 5 percent that isn't there, it has to do with a large amount of fissile material that trips the threshold for requiring some security requirements that are reserved for the NRC. And so that's what makes it problematic for that 5 percent.

MS. LOPAS: Okay. And that's good. That took care of the next question, asking that same question what's the 5 percent means so. And that was from Ben Wishert.
The next question we have on the webinar, and just a reminder to press star 1. You don't have to type your questions into the webinar. You can speak on the phone. So star 1 or go ahead and type your question in.

The next question here we have is from Jeff Burright. It says based on Figure B2 of the regulatory basis, so Figure B2, the regulatory basis document, it appears that GTCC disposal should only be safe if the intruder barrier is also built to withstand drilling equipment between 100 and 500 years.

Is this part of the assumption behind the 500 year barrier in the regulatory basis? The analysis does not provide a basis for expecting such a barrier to be feasible. What about uncertainty analysis for early barrier failure? So let me know if you need me to re-read that.

MR. ESH: Hi, Jeff. This is Dave Esh. Thanks for the questions. So, yes, you're interpreting that reasonably correctly. Because for some that 100 to 500 year time frame for many of the GTCC waste streams that we analyze, you do need to prevent something like a drilling for occurring.

And that's why Tim said if we changed our
regulations, we would require the disposal depth and a robust intruder barrier, which might take the form of, you know, high strength reinforced concrete with a lot of rebar in it, something like that. But we usually don't get to that level of specificity in terms of what the barrier might be.

We would say what the barrier may need to achieve and then allow the licensee or applicant to come with up with how they believe they could design something to meet that requirement.

And then -- sorry, what was the second part of the question?

MS. LOPAS: Okay. So did you answer this part of the assumption behind the 500 year barrier?

MR. ESH: Yes.

MS. LOPAS: Okay. The analysis is often waiting or expecting the barrier to be feasible. What about uncertainty analysis in early barrier failure?

MR. ESH: Yes. So what those figures show is basically the uncertainty in if the barrier failed. So if you had a barrier that was 5 percent effective, then those curves would not start until 500 years or whenever you think the barrier is going to be fail. And so that kind of shows the uncertainty if the barrier doesn't work, what size of impact you would be
Now I would add that there's a lot that goes into that type of calculation. Many of those impacts to the driller are dominated by inhalation pathways. And so you're really concerned with how much of the material ends up in the air, how long is the person drilling, those sorts of things that go into the calculation.

If you have site specific information for those sorts of inputs that go into the calculation, it may be possible that you could justify that the impacts are not too large in that 100 to 500 year period. But as Tim has tried to stress, that's a very site specific thing when you're looking at these different engineered designs and different waste streams and different disposal sites. So that's what we think is the right thing to do for these situations.

MS. LOPAS: Okay. Let me get one more question here on the webinar and then we'll go back to the phones. It's star 1 or just hang tight if you pressed star 1 and you're on the line. We'll get to you.

So this is from Roger Seitz. And it's two questions. One is on Slide 12, it was stated that
Part 61 approach was followed. However, Part 61 classification tables included a factor of 10 multiplier that increases the Class C limits by a factor of 10 to account for a variety of pessimistic assumptions built into intrusion scenarios.

It does not appear that a similar factor would be used in the technical analysis. Are you implying that limitations on GTCC receive more restrictive than Class B by not including the similar factor in this technical analysis.

MR. ESH: Thanks for the question, Roger. This is Dave Esh. We aren't implying that the requirements for GTCC would be more restrictive. But that factor of 10, a large part of the basis for it, was that the waste disposal facility would not be full of waste all at the waste class limit.

So for instance for a normal facility, we have a saying that only a small fraction of the waste would be Class C and a fraction would be at the Class C limits and a fraction would be at the Class A limits.

Basically, much of the waste would be under the class limits. For this analysis we were looking at if the waste was all at a certain value, for instance, waste in the barrel of a certain
concentration, what would be the impact?

This did not consider other waste that runs off of it. And so it wouldn't be appropriate to add in that factor of 10 for this type of analysis because it was really looking at wasting under the limits as it was disposed in actuality whereas as the regularity limits were kind of what's the allowable limits for the different classes of waste.

MS. LOPAS: Okay. And then here's his second question, Roger Seitz's second question, and then we'll go to the phones. Also a mud pit was assumed for drilling in the impacts update NUREG supporting Part 51 from the mid-1980s.

It does not appear such a drilling approach was considered by the technical analysis. Mud pits are commonly used in a site specific analysis likely may be considered a drilling approach with intruder scenario. It seems that a mud pit should be considered in a technical analysis.

MR. ESH: Right. So you're correct. We didn't consider a mud pit because the doses associated with a mud pit are much lower because of the mud being wet and that plus, it's dispersible. But that there are many drilling technologies today that do not use a mud pit and the impacts are much larger.
And so you asked if on a site specific basis you could argue that the drilling technology would be a mud pit. You should factor that into your analysis.

But for this regulatory analysis, it wouldn't be appropriate for us to ignore the much higher risk scenarios which are used in practice with some of the more modern drilling techniques.

MS. LOPAS: Okay. All right, star 1 to get a question on the phone. Lorraine, do we have any questions on the phone?

OPERATOR: Yes. The name was not recorded, but your line is open. You may go ahead.

MS. LOPAS: Hi. Is somebody on the line? You just need to introduce yourself. If you wanted to talk on the phone, now is your chance so. You did not record you name. All right. Lorraine, we might need to come back. Anybody else on the line?

OPERATOR: Karen Hadden, your line is open.

MS. HADDEN: Hi. I was glad to hear the discussion about the drilling equipment. The site that this would go to, and it's very clear from the environmental assessment that this is the site that's really being focused on.
None of the others are really being considered at this point although many communities would be impacted by 33,000 truck shipments or 11,800 rail shipments.

But the drilling would be a possibility because this is the heart of the Permian Basin, the largest producing oil fields in the country. It recently came up in the case about high level waste going to this site that there has been a failure to characterize over 600 abandoned wells that are already in existence in the region.

So there are multiple pathways by which radioactive materials could, in fact, migrate. And I don’t think that there are too many barriers through which drilling could not be accomplished. So, again, I think there needs to be a full blown site specific Environmental Impact Statement for this to be an environmental assessment and adopting the generic Environmental Impact Statement is not enough.

There needs to be a full blown look at what would be the real impact of sending this stuff for shallow burial inappropriately near the Ogallala Aquifer, which lies under eight states. This is not a good idea, and it needs to be researched thoroughly.

MS. LOPAS: Okay. Thank you, Karen.
Let's finish off some of these questions on the webinar and then we'll go back to the phones. So star 1 on the phone. It sounds like you are prompted by a recording to record your name. Just keep that in mind when you press star 1.

So this next question on the webinar is from Ann Frisch. What kind of statistics will you use to estimate the potential for highway accidents given that there will likely be a lot of requests for parking this material in landfills? What amount of risk do you expect? Who will pay the costs? How many new staff will you need to assure public and environmental safety? Will first responders be ready when a shipment is made? Will the public be informed in advance?

MR. MCCARTIN: Well, the reg basis is for disposal. And certainly environmentally -- the Environmental Impact Statement could look at potential transportation accidents, et cetera. Certainly, the shipment of radioactive waste would have to follow requirements that are already in existence by the Department of Transportation and NRC's requirements so usually for the package, for the NRC. But that would be evaluated if a facility was going forward. This is a reg basis for the disposal facility.
MS. LOPAS: Right. So you're saying some of those transportation impacts, Tim, would be evaluated for -- and he asked for a specific facility. And that's not what we're looking at right here, right?

MR. MCCARTIN: Yes.

MS. LOPAS: Right. Okay. The next question here is from Dan Shrum. It says question on the PA. Does a package of GTCC waste consider other waste Class A, B or C, being placed above the GTCC package or was just the GTCC package evaluated?

MR. MCCARTIN: Just the GTCC package. And, remember, once again, that's why we say potentially suitable. There are different ways to dispose of things. And what actually was the design of the facility would need to be looked at and the actual inventories for everything that's disposed of.

But given the very specific nature of greater than Class C waste, you know, we felt that it was appropriate that it probably be a particular disposal unit would be reserved for it. But, you know, certainly from a drilling thing, if you have one package or two packages, you're going to have twice as much waste and so it would be more difficult.

MR. ESH: This is Dave. If you're looking
at co-disposal of GTCC and other waste, Dan, those other wastes would be much less concentrated than the GTCC. So, yes, they would have an additive effect for the impacts, but it would be probably be a small fractional additive effect for the impact so. But yes, a site specific analysis would have to consider all the waste in a column not just one type of waste.

MS. LOPAS: Right.

MR. ESH: Whatever the disposal plan is.

MS. LOPAS: And I think that answers Dan's follow-up question where he says what additional waste classifications would be acceptable to be placed next to or on top of GTCC? And it sounds like you guys emphatic that it's site specific.

MR. MCCARTIN: Given it's analyzed, it's certainly is potentially okay.

MR. ESH: Dan, this is Dave. The one thing we would consider is that the other waste have some of deleterious impact on the GTCC waste. For instance, if you needed to rely on a stainless container for the GTCC waste, would the other waste and characteristics impact the GTCC waste. But other than that, just like I described earlier, you just sum all the activity and the analysis and the scenario.

MS. LOPAS: Okay. All right. So I've got
one more kind of multipart question here on the webinar. So submit your questions on the webinar if you have additional ones. And press star 1 if you want to get on the phone line and talk over the phone line.

So this question is from Gordon Edwards, who is from the Canadian Coalition for Nuclear Responsibility. So he asks what independent checking will be done to verify waste inventories? He sees three problems.

One, list of radionuclides is generally not complete. Two, activity levels can be underestimated by orders of magnitude using mass instead of actual measurement. And three, it's difficult to measure some radionuclides that are long lived lives, such as using carbon-14, a six thousand year half-life poses a long-term hazard.

So he's saying in part two of the question, I should have emphasized some radionuclides which are very difficult to detect because of much less penetrating radiation. No gamma. There is also potential for falsified documentation as well. So he's wondering about independent checking to verify waste inventories.

MR. MCCARTIN: Well, certainly any
application has to have support for their inventory. That would be reviewed by the regulator and is potentially inspectable. And there are limitations of what one can look at, but there is uncertainty there. It would need to be evaluated, just like any disposal site. That's true for Class A, B and C as well as other waste forms.

MS. LOPAS: Okay. All right. Lorraine, do we have any questions on the phone?

OPERATOR: Yes. Diane D'Arrigo, your line is open.

MS. D'ARRIGO: Thank you. I have two here. One is having to do with the doses. Under 10 CFR 61, unless it's been changed, which I don't think it has. It's been considered changed. You're supposed to meet 40 CFR 190, which is 25 millirems per year.

And so I know you're doing the long range scenarios out to 500 and that seems to be a more limiting factor for some wastes going in. So I wanted to hear about the dose calculations and the public being allowed to be exposed to what levels from this material.

And then the other has to do with the economics. How much of this is being motivated by
decommissioning of reactors in other large facilities
and a need for a place for greater than C because it's
taking longer to get a place for high level waste?

So is this something to enable materials
to be moved in the absence of a high level repository?
And then I have one more on transport.

MS. LOPAS: Okay. So do we want to tackle
the first one regarding questions about doses --

MS. D'ARRIGO: Doses and then economics of
decommisioning (simultaneous speaking).

MR. MCCARTIN: Well, let me raise the
economics ones first. And I'll say -- this is Tim
McCartin. As part of the working group, that never
once came into any discussion for us.

The task we were asked was, is this
material potentially suitable for disposal in the near
surface? And that's the only thing we looked at,
whether it's an economic advantage, whether it's
potentially suitable and meeting the 500 year intruder
barrier. And meeting all -- you might have to have a
facility design that would be buried.

Our focus was on is it appropriate that
this be considered for near surface disposal? And at
least I'm not aware of at any time any type of
economic where the nuclear industry was brought to us
or anyone on the working group.

Now with respect to the dose -- well, okay, go ahead.

MS. D'ARRIGO: Okay. I'm sorry. No, go ahead, go ahead.

MR. MCCARTIN: With respect to the dose limit, certainly the 25 millirem dose limit for the offsite individual in Part 61 it's still every bit in play and what needs to be met. And maybe I should have this clear.

When I talk of a 500 millirem dose, that was for the intruder only protection and that is what was considered. In developing the classification scheme for Part 61, they looked at a 500 millirem dose to the intruder.

And so we would require the same level of protection for the intruder that was considered in Part 61 when it was developed. But the 25 is for the offsite individual. That would not change. There's no suggestion whatsoever.

And I guess you have a third one on transportation?

MS. D'ARRIGO: Well, it has to do with since this is much hotter waste than the low level waste that normally is moved, the A, B and C, would
there be more notification of emergency responders along the route? Would there be -- there's that general thing.

And then throughout your description of this, you talk about analysis that will be done. But the analysis is not going to be done every time a shipment is made to a site. It's going to be made, I'm guessing on a generic basis.

And then you're going to generically, potentially, generically make this decision because right now people can, generators can, on a case-by-case basis do these analysis. It's just something that would be potentially too expensive to do as much under decommissioning.

So I'm going back to my first question there. But also the other thing is that this is much hotter and would there be more protection for communities along routes?

MR. MCCARTIN: Well, certainly there would be no changes to the transportation regulations, either Department of Transportation or NRC's package requirements and then the restrictions that are there for the dose that is within one meter of the package, et cetera.

And so would that possibly change a
particular package design that could be used for parts of the -- some of the waste streams? I guess it's possible. We did not look into the particular aspects of transportation.

And that's also an important part that I think the analysis, I was talking for a facility, you're going to have to know how much you are going to put there and whether it's safe. And so I think there --

MS. D'ARRIGO: And when would you need to know that? Before or after you changed the regulation? I mean (simultaneous speaking).

MR. MCCARTIN: Well, you would have to know that to approve an application.

MS. D'ARRIGO: So then it would be, like, WCS was given a license for a certain amount of curies and radioactivity. And then they just go back and they get additional increases in what's allowed. So you would give an increase for now taking greater than C in transuranics and then if they needed more, they would just go back and get amendments to allow it.

MR. MCCARTIN: You're doing a lot of speculation there that I'm not -- I guess, I mean, we don't give people an open ended license. There would have to be both the inventory that you're going to
dispose of, how you're going to dispose of it, the facility design, et cetera, needs to be evaluated. And could it be changed over time? It could be. But that's kind of a different process. Obviously people can file for an amendment to a license.

But my understanding is we've got to know what's going where and how is it going to be disposed of to determine whether it would be safe. And that would be the total of --

MS. D'ARRIGO: Why would you -- I guess the problem is when would you or the regulator on the Agreement State do that? Are you going to do that at the beginning of the changing this definition, changing these rules or is it going to be done each time greater than C is going to come to the sites? And how many times is that done before you say, well, just let it all go? I'm just trying to -- I mean, we as a public have to intervene every single time that we care about. So, you know, if it's done generically or if it's done on a case-by-case basis.

MR. MCCARTIN: Well, okay, if it gets to how might this be accomplished from a regulatory standpoint, currently we have the three alternatives that we're seeking comment on.

MS. D'ARRIGO: Mm-hmm.
MR. MCCARTIN: Ultimately, it will be a Commission decision as to how they want to go forward, if at all. And so that would -- you know, you're right if, you know, in the one case where we don't change the regulation, and we do it on a case-by-case basis.

We wait for someone to come in and say I would like to dispose of this amount of GTCC waste at this site with this design, and they give something to the Commission. Can I do that?

MS. D'ARRIGO: And that's the current way that it's done, right now.

MR. MCCARTIN: Correct.

MS. D'ARRIGO: That's the normal way.

Okay.

MR. MCCARTIN: And I believe the first step of that would be for the staff to do an evaluation of whether it's appropriate for this amount of waste to go to this facility. And --

MS. D'ARRIGO: Yes.

MR. MCCARTIN: -- we would have to document our basis for saying either yes or no or yes with requirements. And, you know, I think at present the reg basis gives it some preliminary ideas of the types of things we would look at it.
But therein the negative of that particular approach at a particular site, maybe there would be some other things that were more significant, and we would look at in greater detail. We don't know without an application.

And I guess I'm not willing to speculate, but we would have to develop an evaluation and a basis for that. And the public would certainly be kept informed of that. But --

MS. D'ARRIGO: Well, what it sounds to me like is going on here, and you know, correct me if I'm wrong, is that this process that we've just discussed is going to change, or would potentially change, if approved by the Commission and those steps would no longer be undertaken. It would --

MR. MCCARTIN: Well, I didn't mean to imply that. There is different ways that there could be a regulatory evaluation of the safety of greater than Class C disposal.

MS. D'ARRIGO: Okay.

MR. MCCARTIN: They might also say we want to develop a rule and go through a rulemaking.

MR. KOENICK: I think, this is Steve Koenick. I think, Tim, what you're trying to say is if we did proceed down rulemaking, would that replace
the site specific case-by-case analysis? And that is not the case.

So whether we have rulemaking or we do site specific without rulemaking, the rulemaking would specify what the requirements are that the licensee would have to undergo. So it would add some formality to what that review process looks like.

It would not, by no means, would it replace a licensee coming in for this analysis. As Tim mentioned earlier, they still would have to do the site specific analysis, and they would look at the inventory.

So the hazard of the Draft Regulatory Basis defines what types of hazards we would be looking at and how that process would look like, but it would not replace that evaluation.

MS. D'ARRIGO: Then what's the advantage of it? The advantage of doing it if you're not going to reduce that regulatory burden?

MR. KOENICK: This is Steve again. The regulatory basis, if you add more formality, and you have more institutional documentation of what that process looks like, you codify what it looks like and what you are going to be evaluating as opposed to just doing it on a case-by-case basis. So certain aspects
of these hazards would have been well vetted in a public forum as to what those considerations are. But it doesn’t replace the reviews.

MS. HOLAHAN: And this is Trish Holahan. I'm just going to clarify. It's not the Reg Basis, but if we proceeded with rulemaking, that would codify the, you know, requirements, but we still do a case-by-case basis for each applicant that comes in.

MR. SCHOFER: And finally, this is Fred Schofer. In the Reg Basis Section 7, we attempted to outline each of the pros and cons of each alternative and the process that the licensee would have to go through.

MS. HOLAHAN: Yes.

MS. D'ARRIGO: Well, and isn't it true though that it would be the Agreement State that would be doing what you're saying would be done, not the NRC?

MR. SCHOFER: Actually, we considered it both ways, whether an Agreement State would do the licensing for the NRC.

MS. D'ARRIGO: Okay, I didn't get that far, I guess.

MS. LOPAS: So, if you have comments on that, Diane, that would be an important thing to
submit comments on from the pros and cons of whether
a standard Agreement States should do this as well.

I have two questions here. I have one
follow-up here on the webinar. So star 1 if you have
more questions on the phone, but I have a follow-up
from the inventory question on two checks from Gordon
Edwards.

So I think the question is, you know, he
did not like your -- he did not find your first answer
reassuring, Tim.

So he says here, does the NRC -- does this
mean the NRC does no independent measuring of
radionuclide inventory? Do they take the declared
inventory on space?

MR. ESH: Hi, Gordon, this is Dave Esh.
All of our existing facilities are in Agreement
States. And so the Agreement States fulfill that
function. But I was recently on -- well, not exactly
recently, but it seems like recently on two of what we
call our IMPEP reviews, where we review through our
Agreement State programs, one in the state of
Washington and one in the state of Texas.

And when they receive waste, they do
independent inspections of the waste receipt process,
which involves -- you know, there's waste manifests
that the generators have to put down what's in the waste that they're sending. And then the disposal facility has their own requirements about acceptance of the waste.

And there are exclusionary requirements like, you know, if barrel's leaking and that sort of thing. They're pretty obvious, but then, the questions you were asking about how do you determine actually what inventory is in there? That's a more challenging question, especially, what the hard to detects.

It is something that we've worked on with allowing people to use scaling factors for certain types of ways, but they have to justify their methods that they come up with for use of those scaling factors.

For some waste disposal programs, like I know within the Department of Energy, when they do waste acceptance from generators, they'll do some independent measurement and verification of the waste. And in some cases, like for waste that was sent to WIPP, when they were too uncertain about what was in the barrel, they went through a process of opening the barrels and characterizing them and determining exactly what was there.
So the high-level answer is, yes, you have to be confident in the inventory that goes in the facility, and there's a variety of different methods and approaches you could use to develop that confidence. And then the assessment ultimately should reflect the uncertainty in that inventory because in some cases, the uncertainty in the inventory may not be important. In other cases, it may be very important.

So I hope that better answers your question about the inventory. For GTCC waste, because it is more concentrated, and there could be high concentrations of transuranics, the approaches to characterize that waste and accept it may need to be more rigorous.

But that would either come out in say if we developed guidance, or if we did a rulemaking, we would look at whether we need more robust criteria associated with waste acceptance and characterization.

MS. LOPAS: Okay. Let me get to this last question on the webinar. Star one, for folks on the phone, to get some questions in on the phone.

The conversation -- this is from Jeff Burright. He says, the conversation today seems to stress the need for site-specific analysis, i.e., a
model rather than prescriptive end states for disposal based on waste longevity or concentration.

Am I understanding correctly that big picture when it comes to GTCC disposal model rule? If you give up authority to the states for making a GTCC decision, how will you verify that the models used are good enough? Will NRC review a state's decision?

MR. MCCARTIN: Well, regardless of any model used, there has to be a basis for the validity of the models and the inputs, et cetera. And so, you're correct in the assumption -- and the analysis has to be done. But it also has to be done right. And that's part of the review process in terms of -- and this is where, I mean, if we're the regulator, we would certainly do that review.

As Dave Esh talked about, there's an impact process where we do go in and look at how Agreement States are operating, and that's a way for us to look at their process. We would not -- as best I understand it, but I leave it for others, I mean, we don't go in and do a second regulatory review.

But if their program is appropriate, then there is an understanding that the right decisions are made.

MR. ESH: This is Dave. I'll add to that
because I don't know if Tim's done an impact in a while. Whenever we do those, we'll do vertical and horizontal slices of the technical work that the state has done. So we may ask to see their -- what they reviewed and how they reviewed it, what guidance they used, if they were looking at a particular model, you know, computer files. We may look at those computer files. We may look at their spreadsheets that they used. All of that goes into the technical -- our technical assessment of their licensing review.

And yeah, it's not as rigorous as if we did the licensing review ourselves because this is a shorter-term activity, it's trying to assess the program. But it isn't a matter of that we're just putting checks on a checklist and saying, okay, you see that they have a document, and we don't look at the details in the document. We do to the amount that we can in the scope of one of those reviews. We do review their documents and how they made their determination that the materials that submitted to them were satisfactory or not satisfactory.

MS. LOPAS: All right. I'm going to check in on the phone. Lorraine, do we have any questions on the phone?

OPERATOR: There is some question. The
name was not -- it was not recorded. But your line is open.

MS. LOPAS: Hi, is somebody on the phone?
All right, you may be on mute. Give it a whirl. Maybe put yourself on mute one more time.
All right, Lorraine, you might have to delete that one.
OPERATOR: All right, I'll go ahead and clear it.
MS. LOPAS: Okay. So R1, if you want to ask a question, I have one more question here in the webinar. So this question from is Karen Hadden again.
She says, please discuss what containers would be used for shipping GTCC and GTCC-like waste? And what doses to the public would be from routine shipments and from stops during and from truck and rail transport?
MR. MCCARTIN: Well, it's Tim McCartin. I'm not a transportation expert. And this Reg Basis is about disposal, but there are approved containers that limit the exposure that would be received by any member of the public either while it's stopped in traffic or at any other particular stop and during transport.
We can get back to them if they want what
the regulatory requirements are for the dose limits, but those requirements -- there are different packages out there up to and including packages that are used for spent nuclear fuel that keep doses to a very -- so there's not a -- I'm not aware of any constraint that a package isn't available that could meet the transportation requirements.

But what exact package that would be I -- we would have to talk to the transportation people.

MS. LOPAS: All right, Karen, I'm sending you a message. If you want a specific response to this, maybe from one of the transportation folks that we know, send me your email here, and I'll get your email. Maybe they can get in touch with you to help you understand.

MR. MCCARTIN: The one thing I can say, I know in DOE's FEIS, I believe it is a Type B package that they said the GTCC would be transported in.

Now, because I'm not a transportation person, Type B has a very specific meaning in the transportation regulations and requirements. But, you know, I'm not prepared to explain exactly what that means.

MS. LOPAS: Okay. All right. So, Karen, just send a message here. If we end the webinar
before you end up sending me your email, you can also
send an email to Cardelia and/or Kim. And their
contact information is in the presentation, and I'll
bring that up right now.

Okay. So let's do a final call here. I
don't have any other questions on the webinar. So
final call for webinar questions and final call here
for questions on the phone. So star 1 on the phone.

Lorraine, do we have anybody right now on
the phone?

OPERATOR: I'm showing no questions at
this time.

MS. LOPAS: Okay. Why don't we -- while
we wait for those last couple questions to come in if
there are some, Cardelia or Tim or Trish, does anybody
have anything they want to follow up either on the
comment period or any other closing remarks?

MS. HOLAHAN: Pennsylvania mentioned that
they wanted an extension, you know, put it in writing,
and, you know, we'll consider it.

MS. LOPAS: Okay.

MS. HOLAHAN: And this a fresh start.

MS. LOPAS: Yes.

MS. HOLAHAN: And I would just say, you
know, we've had a very fervent conversation here
today. We've had a lot of questions. Sometimes we can't always get to the breadth or depth of answering some of your questions during these kinds of encounters. I really want to go back and say, please, put your comments in writing, and put the docket number on there. That way your question does not -- and comments do not get lost. And we will have a better opportunity to review and evaluate your comments and questions.

So in doing that, you're helping us, and we are helping you, and we create a win-win for everyone.

And this is Trish again. I'd like to thank everybody for their participation, and the staff here, especially to make it a meaningful dialogue.

MS. LOPAS: Okay. Let's see. Lorraine, did we have anybody pop on the line during that time?

OPERATOR: Yes, we did. Give me one moment, please.

It looks like their name was not recorded. But your line is open. Just go ahead and speak out.

MR. CAMPER: Hello, can you hear me? This is Larry Camper.

MS. LOPAS: Hi, Larry, yes.

MR. CAMPER: Can you hear me?
Hi, how are you? First of all, thank you, staff, for your hard work today, very good job, thank you.

I'd like to make one comment and then ask a question. I think it's very important for everyone listening in to understand that currently, TRU waste in excess of 100 nanocuries per gram is in fact, orphan waste. If it's not cited within the tables, there's no place for it to go. There's a large inventory of GTCC waste today, and it will be increasing.

And I think what we should all do is look carefully at the additional requirements that the staff is citing that would be added to Part 61 to address the disposal of GTCC waste if in fact a rulemaking proceeds.

That's the comment. The question that I have is I'd like you to refer to table 3-1, and then in turn, table 3-4.

And the question is this, I know that most of the remote-handled waste from West Valley has been deemed to be suitable for near-surface disposal with the exception of 540 cubic meters of waste identified as West Valley decontamination of NPPB, which staff included -- exceeded 10,000 nanocuries per gram.
Can you speak a bit more as to the radionuclides and amounts that led you to that conclusion and therefore the conclusion that it was not suitable for near-surface disposal? Thank you.

MR. MCCARTIN: Yes, in that particular situation, decontamination activities that are going on at West Valley of the main plant processes, a processing building. And I will -- my understanding, and I'm looking through to confirm, but it's americium and plutonium.

MR. CAMPER: Americium-241, 41.

MR. MCCARTIN: Yeah. Americium-241 is 41 of the nanocuries. And I think the other approximate half of the curie amount is plutonium.

And so, it's those two, but I think that's what you're looking for.

MR. CAMPER: Tim, thank you for that. Is there a specific place where there's inventory amounts are cited that I could turn to in the analysis? Or better yet within the DOE FEIS?

MS. LOPAS: Repeat that, Larry. Is there a specific --

MR. CAMPER: Is there a specific place where one can look at the inventory -- the amount of americium and plutonium either within this impact
analysis or DOE FEIS?

MR. MCCARTIN: Well, certainly -- well, for the 17 waste streams, you won't -- you could get it out of the FEIS, but it would be pretty difficult.

If you go to the document that's referenced, the NRC 2019, there is an appendix that gives the inventory for each one of the 17 waste streams. And in there you will see -- and because of the 17 -- I'm looking real quick -- I think, A-6.

MR. CAMPER: Tim is that the technical analysis document cited in Appendix B?

MR. MCCARTIN: Yes.

MR. CAMPER: Okay, very good.

MR. MCCARTIN: And there's an Appendix A that has all of them. Yeah, and it's Table A-6.

MR. CAMPER: Yeah, that's the document entitled, technical analyses of the hazards and disposal of greater-than-class C waste, NRC 2019 referenced on B-1 of Appendix D, is that correct?

MR. MCCARTIN: Correct.

MR. CAMPER: And that's where you'll find more detail as to the inventory that lists that inclusion, right?

MR. MCCARTIN: Yes.

MR. CAMPER: Okay. Great. Thank you.
MS. LOPAS: Okay. Lorraine, do we have any other questions?

OPERATOR: Yes, our next question. The name was recorded as Concerned Citizens for Nuclear Safety. Your line is now open.

MS. ARENDS: Thank you. My name is Joni Arends, and I'm with Concerned Citizens for Nuclear Safety based in Santa Fe. I thought I heard earlier that this will be transcribed. And I wanted to understand when the transcription would be available?

MS. LOPAS: Cardelia, will the transcripts be publicly available?

MS. MAUPIN: Yes, we will give the transcriber I think they it takes probably seven days to get it back to us. And we would -- we have a public website on GTCC, and we can post it there. And we can also probably post it on our docket as well, so it'll be easy access.

MS. ARENDS: Oh, thank you so much. And then I have another question based on the previous comment. Is it possible -- you described throughout the webinar about the 17 different waste streams. And I'm concerned now that you're saying in answer to the previous question, it's going to be really hard to reconstruct that. I think it's really important for
NRDC -- or NRC to provide references for each page or a reference for the 17 different waste streams based on the final EIS for GTCC.

MR. MCCARTIN: Well, okay. I'm not sure -- maybe I -- in terms of reconstructing, you would have -- you know, the information is in the FEIS. We're the ones that took that information and distributed to 17 waste streams.

Those 17 waste streams are presented in the NRC 2019 document in an appendix. Each waste stream has a full listing of the inventory et cetera.

Now, what I was saying is if you go to DOE's FEIS, you are not going to be 17 waste streams. I can go back and recreate exactly -- okay, this is that one, this is this, and pull it out, but it's not the easiest thing to do because it took me a while to do that. But I mean it is possible.

Anyone who wants to know, I can show exactly where I got that waste stream and how I did it. But for simplicity, if you want to know the 17 waste streams, they are every -- each one of them is explained and described in the appendix of that document.

MS. ARENDS: In the appendix of the NRC 2019 document?
MR. MCCARTIN: Correct.

MS. ARENDS: Okay, great.

MR. MCCARTIN: Appendix A. Each one of them is there. But I will say -- if there's one thing I have to say is that what the 17 waste streams are very good at, in my opinion, which having developed it, I guess I'm biased, but you can see there is a wide range of variability between each of these waste streams.

And so that's what we're trying to stress, that if you're going to dispose of something, you're going to have to describe what you -- I'm not saying these are -- they're accurate with respect to what's in DOE's FEIS, but some of these future waste streams if they're different -- whatever GTCC waste is being suggested for disposal, as has been discussed, you need to have a basis for the inventory and analyze that inventory, and I think all we're trying to show here is that variability is quite significant.

And some of it will be much easier to demonstrate safety in an inner-surface disposal facility. Some will be more difficult. Some may not be possible.

MS. LOPAS: I just want to clarify here, Tim. This document that lists the waste stream is
this an appendix or is this a reference in our appendix to the Reg Basis?

MR. MCCARTIN: It's a reference --

MS. LOPAS: Okay.

MR. MCCARTIN: -- in the Reg Basis.

MS. LOPAS: Okay. Is it the ML number?

Okay, so you'd have to go to ADAMS, folks. And so that ML number, if you're interested, is ML19162A259. So if you are familiar -- sorry, go ahead.

Do you need me to repeat?

MS. ARENDS: No, I appreciate the reference. As a state that is being targeted or being from a state that's being targeted for this waste disposal. I think the more specificity that you can provide now with regard to the variability of the waste -- the 17 waste streams, and the volume that you're anticipating will be very important, especially if we move down this road.

MR. MCCARTIN: Right, and like I said, that reference is Appendix B reference list in the Reg Basis has this NRC 2019 document, but I would refer you to table 3-3 in the Reg Basis, which does -- is a table that gives each of the waste streams according to the transuranics concentrations with half-lives
greater than 55 years.

And the volume. And so, if you, you know -- as we have said the transuranic waste pose some unique issues for the intruder, for operational hazards. And you can see there the kinds of volumes, and as you go up the table from bottom to up, the concentrations of transuranics are increasing.

And that was one place where we're trying to give people perspective of the variation that goes from zero actually for large sealed sources, which is just cesium-137, which is not a transuranic, which is why it's zero, all the way up to 85,900 nanocuries per gram.

So you can see -- that to me is one of the better tables in the Reg Basis that gives a sense of the volumes and the hazards based on the concentrations of transuranics.

MS. LOPAS: Okay, I have one more comment here that I'm just going to read from Karen Hadden. And Karen I'm going to read it aloud, but I also -- I think you know that you should submit this in writing.

So comment -- Karen says, geologic disposal is needed for GTCC and GTCC-like waste. SEED Coalition, the organization I represent, does not advocate for disposal of either the WIPP Site or Yucca
Mountain, but shallow burial up to 120 feet deep is not appropriate as laid out in the generic EIS. A site-specific EIS is needed for the WCS site.

So thank you, Karen, for that comment, but make sure that you get that comment in writing by the September 20th deadline on nrc.gov or the rulemaking email.

Lorraine, do we have any other comments on the phone?

Are you there, Lorraine?

We can't hear you, Lorraine.

OPERATOR: Diane, your line is open.

MS. D'ARRIGO: Thank you. I just wanted to also support Pennsylvania's request for an extension on the comment period on this. There's probably really not a need to rush it.

It's been a long time. And I'm for a long comment's extension.

MS. MAUPIN: Okay, thank you. And going back to what you said earlier, if we could get those kind of comments that you want to come -- extension period extended in sooner rather than later because we would have to basically do another Federal Register Notice to extend it.

And we would have to discuss this with,
you know, our management here. So the sooner we can
get those kind of comments in writing, we can, you
know, consider them and take the appropriate action as
soon as possible.

MS. LOPAS: All right. Lorraine, are
there any other comments on the phone?

OPERATOR: Yes, Larry Camper, your line is
open.

MS. LOPAS: Hi, Larry.

MR. CAMPER: Yes, hi, can you hear me?

MS. LOPAS: We can.

MR. CAMPER: Oh, good. Thank you. In
listening to some of the questions that are being
asked, particularly from concerned stakeholders in
Texas, I would draw to everyone's attention to the
fact that the NRC staff also did a prior analysis
around the questions for GTCC disposal. And I think
you can find a lot of very useful information in
Enclosure 2 to SECY-15-0094.

It's entitled, technical considerations
associated with greater than Class C low-level
radioactive waste disposal and qualitative examination
of disposal challenges. And I think that that
information, which is rather extensive coupled with
the work that's done in the current Reg Basis document
can also serve to answer some of your questions about the disposal of GTCC waste, and in turn, the kinds of changes that the staff is proposing that if a rulemaking were to proceed.

So I think that could be useful information for background reading as well. Thank you.

MS. LOPAS: Okay. Thank you.

OPERATOR: There are no further questions in queue at this time.

MS. LOPAS: Okay. All right everybody, with that we are going to end the webinar. I do have one follow-up that I will get from Karen Hadden to Cardelia regarding transportation, but please give your comments in by September 20th. If you have a request to extend the comment period, please get that in ASAP. You can email that to the rulemaking email real quickly.

And so with that, we will end today's webinar. Thanks, everybody for your participation, and have a great day.

And court reporter, we're going to stay on the line for you. So we will hang on.

(Whereupon, the above-entitled matter went off the record at 3:28 p.m.)