PG&E DIABLO CANYON DECOMMISSIONING ENGAGEMENT PANEL

PUBLIC MEETING

ZOOM VIDEOCONFERENCE

WEDNESDAY, MAY 25, 2022

6:03 - 9:33 P.M.

REPORTED BY BAILEY ANDREWS, CSR NO. 13892

MS. SEELEY: First of all, I would like to acknowledge Sheri Danoff, our former member of our panel, who is here in the audience tonight. Thank you so much Sheri, for all your hard work over the past four years. We -- you don't know how much we appreciate it.

Also, we have three new members. Oh, and Lauren Brown is here too, our former -- that's right. Really good to see him tonight.

We have three new panel members. I would like each of you to introduce yourself. They come to us highly qualified with great skills. So, please, introduce yourselves.

MR. LUCAS: My name is Michael Lucas. I'm a 25-year resident with my extended family in the Morro Bay area. I have been faculty at Cal Poly in the architecture department. I was Associate Dean for the college for a while. Also have been, for extended period of time, planning commissioner for Morro Bay, and I served through the completion of the general plan last year, and through all of the theater involved in the waste water treatment plant. And I'm very happy to be part of a complex problem for the community.

MR. PAVLIK: Good evening. My name is Robert Pavlik. I've lived in San Luis Obispo County since 1986, and here in the city of San Luis Obispo since 1995. I came here as a historian for California Parks and Recreation, and then I moved on to Caltrans, where I worked as an environmental planner and historian for 22 years. And I am back momentarily

with the state Parks. I am a student of public parks and also public works. And so I'm -- I'm honored and delighted to be here and to be apart of this panel. Thank you very much.

MR. SEVERANCE: Hello, My name is Bruce Severance. I am one of the early founding member of what is called the research collaborative at the Institute for Climate Leadership and Resilience Cal Poly. Been involved in the community in many, many different ways, including homelessness issues, many, many ways, including on homelessness issues, social justice issues. I am a general contractor and energy analyst, and do passive home design and construction, and energy upgrades. Thank you.

MS. SEELEY: Thank you. Welcome to all three of you.

So I am going to review. Last time in April, we had kind of a skimming process with Orano, who is here tonight, thank you for coming, about our new cask system.

And tonight we are calling this a deeper dive into the attributes of the new cask system, the challenges of the new cask system, and, you know, for us to convey to Orano what the concerns of our community are. So we really want to illicit from the public, your comments and your questions, and you can go to our website, diablocanyonpanel.org, where you can comment any time, day or night, about this process that we are involved in right now.

The other things is, that we have -- we submitted a list of eight pages of questions to PG&E and Orano about the new

system. And, apparently, they will be addressing those questions tonight, although we do not have the exact answers yet. But those will be coming and they will be posted on our web page as soon as we get them. And we are hoping that we get them soon. Thank you.

MR. ANDERS: Thank you, Linda.

Next up is Dr. Tim Auran with our safety briefing.

Tim?

MR. AURAN: Thank you, Chuck.

Again, every meeting we like to start with a safety message.

In the event of an earthquake, the safest place is to stop cover and hold. In the case of a fire, know your exits and escape routes at home. For those in attendance at the meeting tonight, that would be the two sets of double doors in the back. In the event of an active shooter, determine the best option for a safe outcome, which could be get out, hide out, or take out.

Also, please note for anybody who is here in attendance, the Sheriff's Department deputies are in attendance as well. In the case of a medical emergency, we have an AED located in the lobby. We also have the Diablo Canyon Fire Department in attendance. Anybody who has a medical need, please contact someone wearing a PG&E shirt, and they can get you assistance as well.

Anyone at home, please call 911 in the case of an

emergency.

For everyone's psychological safety, please be respectful of one another. This may be a long night. There are a lot of questions to be answered and to discuss. Please remember to stretch every 30 minutes or so.

As Covid remains prevalent with the cases increasing in town, please remember wash your hands frequently, get your vaccinations, and wear masks in public as needed.

Thanks, Chuck.

MR. ANDERS: Thank you, Jim.

Linda is now going to provide an overview of the public meeting in April, and the generation of -- wow, almost 70 questions?

MS. SEELEY: Yes. You know, we had already did that.

MR. ANDERS: I jumped the gun.

MS. SEELEY: Yeah, it's okay.

MR. ANDERS: I apologize.

MS. SEELEY: No worries.

MR. ANDERS: Our next item is PG&E update. I'm really anxious to hear what Linda has to say.

MS. ZAWALICK: Good evening, panel members and members of the public. Looking forward to the discussions today.

And as Linda mentioned, the purpose of this meeting is to take the deeper dive, get more details on the new cask system. And hear from, really, not just from PG&E, but from the experts at Orano, and also from the California Energy

Commission, Dr. Cochran. So really looking forward to those discussions.

And as Linda mentioned also, we received a lot of great questions and inquiry and feedback from not only the April 20th meeting, but since then as well. And we have factored those in to our presentations, and then we will formally, you know, memorialize them, if you will, on the website so you can see the clear answers to all of the questions that we receive and all the various inputs.

The next step will be, you know, to open houses that we will talk about later in the meeting, and any follow-up actions that we get from any of the inquiry, and questions from the panel and members of the public. So we will go through that as well.

Also, since the last public meeting, there was news around the Department of Energy's civil nuclear credit program. And I discussed an overview of what that program was in April, and then periodically since April, been updating -- PG&E has been updating the panel members with information on that program.

And, yesterday, some of the updates I'd like to give, is yesterday, Governor Newsom's office sent a letter to the Department of Energy secretary, asking for amendments to the DOE's criteria and requirements for eligibility of that program.

While, you know, PG&E has met and continues to meet all

of the energy policies and obligations in the State of California, you know, the state is indicating concern that the retirement of Diablo Canyon could adversely impact the liability of the grids and electricity demands in California.

So that's the latest and that was sent yesterday, and we have not heard any response from the Department of Energy as of yet.

So with that, Chuck, I will turn it back over.

MR. ANDERS: Great. Thank you.

Now, Linda, now is the opportunity to provide the recap.

Well, we've got about -- does anybody have any questions of Maureen? We have an opportunity for discussion. Any questions? Okay.

Let's move on to the agenda item No. 5. And that is a recap of the public input process to generate the questions on the new Orano Storage System.

MS. SEELEY: I'm going to do this from memory. I was going to have a slide, but I don't have one.

MR. ANDERS: You can't see it?

MS. SEELEY: No. It is not there.

So winding my brain back to April -- Oh, there it is. Yay. Is that it? Or no, that's not it.

Okay. Anyway, I will try to get this. Modern technology works.

Okay. April 20th we had a meeting, and we heard -- I think I already said this, we heard from Orano, we heard from

PG&E about the new system. Then we asked the public to send -- to ask questions, we collected those questions. We -- we wrapped those into preparations for this night tonight. Here we go. And I don't know if you can see it, I can see it.

We submitted all of these questions to Orano about the -- the new system, and about the trainings that their employees have, the experience, the safety, all of that. We haven't heard back. I suppose you'll be telling us tonight some of those answers, I don't know. And then we submitted 42 questions to PG&E about risks, security, cask agent, management, which is very important for our 58 casks that are out there right now, how are those things going to be managed over the next umpteen whatever years.

Okay. Next slide, please. That's okay. You're here tonight. Welcome.

MR. ANDERS: Thank you, Linda.

I have to apologize to everybody. You're probably distracted by this technical challenge. And the folks on the Zoom meeting are probably wondering what's going on. We are trying to make the slides work, and we wish we had video of the speakers, but we don't right now, so you will hear the speakers by voice and you will see the PowerPoint presentations unless we figure something out. Oh, the people on the podcast can see the speakers I'm told. That's good. Thank you.

Next we have Dr. Justin Cochran with the California

Energy Commission to discuss the Commission's involvement and the contractor selection for the new spent fuel storage system.

Dr. Cochran, are you there?

DR. COCHRAN: Yes. I am here. Can you hear me?

MR. ANDERS: Can you turn your video on?

MR. COCHRAN: Yes.

MR. ANDERS: No. Okay. Go ahead, Dr. Cochran.

MR. COCHRAN: So I'm -- while I'm doing the presentation, I will turn off my video because my bandwidth is a little bit tight right now. Kids are home eating dinner, working on homework. So during the presentation, I will keep the video off. During the questioning session, I will turn my video back on if that works for everyone.

All right. So good evening, all. I'm Dr. Justin Cochran, Senior Nuclear Policy Advisor and Emergency Coordinator for the California Energy Commission. I'm here tonight to provide a quick update on the spent nuclear fuel collaboration activity that we have been involved in over the last few years with the staff of Diablo Canyon.

So our agency was established by the Warren Alquist Act in 1974. The Energy Commission is a state agency on energy policy and planning. More on path to a 100 percent clean energy system.

The Energy Commission is committed to promoting a clean, affordable, and reliable energy supply for all of California.

Next slide, please. So our agency's primary function is to include advanced and state energy policy, invest in new energy innovations, developing renewable energy, preparing for energy emergency, achieving energy efficiency, transforming our transportation grid, overseeing energy infrastructure, permitting thermal power plants in the amount of 50 megawatts or higher, and, you know, we engage in a lot of intergovernmental, interstate, interagency collaboration.

Next slide, please. So our statutory authority and responsibility in the areas of nuclear power and nuclear waste disposal stem from the Warren Alquist Act and our agency's expertise.

Since the 1980s, one of our commissions has served as the State Liaison Officer to the U.S. Nuclear Regulatory Commission.

As a consequence of this role, our agency coordinates the safety technical expertise and engagement in NRC and other federal agencies activities that pertain to special nuclear material, as well as nuclear power.

So as you are likely aware, several authority preemptive State regulation and nuclear power materials, which limits how states can regulate or engage in this.

So over the past decade, we have published multiple reports and engaged on key topics with an interest in state and our community.

Next slide, please. So both the Energy Commission and

Diablo Canyon team agree that dry storage is the path forward. So our goal in this collaboration, and as part of this process, was to ensure the safe uneventful expedited transfer of spent fuel to dry storage.

So we're to maintain engagement in discussion with the Diable Canyon team on spent fuel management, as well as insurance plans and programs including key stakeholder input.

Furthermore, our experience and lessons learned from recent spent fuel transfer to campaigns and activities, we hope to incorporate those in all of our future activities with regards to any facility and programs, and also exploit developing technology to maximize site safety and monitoring.

Finally, our primary goal is to work towards the eventual removal of all spent nuclear fuel from California lands. That is a big hurdle, just because of the constraints that are currently involved, you know, in the national program and the national aspect.

Next slide, please.

So for consistency, I'm going to use the PG&E timeline that you are all familiar with. And so I will just focus on the three primary segments, the public input, confidential review, and where we are now.

Next slide, please.

So our activities over the public input period included engagement in the pre-RFP activity, including multiple meetings, and we had a site visit and technical workshop at

Diablo Canyon that consisted of the Chairs of Energy Commissioner, one of our Commissioners, and four of our technical team.

Our initial RFP content, review, and discussion focused on safety, environmental factors, stakeholder input, key barriers, and target timeline.

Next slide, please.

During this period, our staff had multiple meetings with stakeholders, reviewed relevant resource documents and recommendations, as well as meetings. We engaged in internal and external discussions on UCLA spent fuel storage risk assessment. And ultimately, in our opinion, after our discussion internally and with others, the net results of the various activities was an approved RFP package that went out to the vendors.

Next slide, please.

So the confidential review period included multiple technical bid scoring and weighting discussions. The technical review involved detailed discussions with the Diablo Canyon technical team. We focus these discussions on, you know, key elements that we were targeting. And overall, these discussions were positive and gave insight into the review and assessment process while allowing us to observe how Diablo Canyon team incorporates stakeholder feedback into their process.

Next slide, please.

Following the technical review, Diablo Canyon staff continued to provide status updates and supportive meetings when requested.

And, you know, as part of the RFP process, in March of 2020 and 2021, the Chair's office sent letter to the Diablo Canyon team indicating satisfaction for level of engagement over the RFP and the technical review process.

So over the coming years we will continue to engage with key stakeholders on pertinent issues. This will include monitoring and engaging in federal activities, continued discussions on spent fuel and risk safety, and we will continue to share information as it becomes available.

I want to thank you for your time. That concludes my presentation, and I am available for any questions or discussions.

MR. ANDERS: Does the panel have any questions or for Dr. Cochran.

DR. COCHRAN: We also have Ken Rider, who is the Chief of Staff for Chair as well on the call as well. He was involved in the technical review process.

MR. ANDERS: Bill?

MR. ALMAS: Yes. Thank you, Dr. Cochran. I'm interested in exploring a little bit more the technical aspects of your review of the CEC review. There is a box on the timeline that PG&E provided that shows CEC input, and then there's a safety-- or there's another box, and you might pull that up,

actually, if you -- can you do that, Tom? There's a box that talks about a technical review committee that comes in from the top.

Who was on that committee, what expertise did they have, and what was the result of that, I mean, in general, the result of the technical review?

MR. JONES: So, Dr. Cochran, this is Tom Jones with PG&E. The box that Bill Almas is referring to is actually a PG&E box of independent technical experts, had to retired NRC consecutive.

MR. COCHRAN: Right.

MR. ALMAS: Independent Safety Committee?

MR. JONES: Separate from them as well. This was internal to us to be another check and balance. So this was a retired Utility Chief Nuclear Officer, and two retired NRC executives or high level folks. They were inside the PG&E. The box that Dr. Cochran is referring to is the CEC's purple box down here. They have their own process, so I will defer to Dr. Cochran to describe that process.

MR. ALMAS: Okay. So forget the question concerning the top, although I still have questions about that. But the same question applies to the CEC, could you address that, Dr. Cochran?

DR. COCHRAN: Sure. So the technical review was sort of broken down into two components, right? So there was elements where we were looking at the technical elements of the RFP,

where we ask questions, where PG&E had some of their technical staff on there to address questions, to highlight issues.

Now, I can't get into granular details because of the nondisclosure agreement and some of the business sensitivity of the bid. Tom may be able to provide greater clarity on that.

But what I can say, is that during that technical review process, we focussed on a lot of the key elements of safety, reliability, system requirements, both that federal and state. They are part of the safety elements, as well as, you know, more aspects, what is the heat load, what is the NRC looking at with regards to current license, future license, what requirements are the NRC likely to bring into play?

And, in general, you know, I found that, you know, the PG&E technical, and Diablo Canyon team, specifically, were very informed, very knowledgeable, very diligent. And, you know, we would get into some detailed questions, and they would bring up aspects that we were not aware of that, or we had not had any familiarity with, because it's not like we are nuclear engineers. I mean, Ken is an engineer, I am a scientist in material chemistry.

So our focus was at one level, and the PG&E team were bringing in details from a deeper more granular level, allowing us to learn, and allowing us to ask questions to others, get greater insight to some of these technical barriers that this new system would need to be addressed in

the new system by any of the vendors.

You know, I think, Ken, did you have any insight or thoughts on that question?

MR. RIDER: No. I don't have anything specific to add to that. I just thought that was a pretty good response.

But, yeah, we got the got -- is that my feedback? Sorry. I got some feedback there. We just got the chance to I think channel concerns of the State for the State of California, and for other concerns that we heard throughout participating in these kind of meetings, and channel that into review of the determinate of the new cask system, and try to, you know, do our best to appropriate all sorts of things into a timeline and also the details about how we can enhance the safety of this spent nuclear fuel storage.

DR. COCHRAN: And, you know, just to add a little bit of clarity on the technical review, there were technical -- there were multiple multi-hour meetings where we were engaged in key elements with PG&E, with Diablo Canyon team, you know, on the pre-RFP, on the bids, and on the scoring of the bid, and on, you know, all of the components involved in that.

You know, Ken and I both observed that initial RFP, we reviewed that. We brought up some issues, PG&E engaged other stakeholders. They brought us back a modified RFP, and we saw the changes that they made as a consequence of that engagement with the stakeholder.

You know, then when we got more into the bid assessment,

I know that PG&E reached out and asked some additional follow-up questions to some of the bidders as a consequence of those discussions in reviewing the bids.

So hopefully that addresses your question and gives you some clarity on that.

MR. ALMAS: Yes, it does. I think it establishes, as well, that your review, the CEC's review, was more on a upper level review, rather than things like materials, a science, and, you know, a thermodynamics of -- that was left to PG&E's Technical Advisory Committee and to Orano. So that's -- to sum up, that's what I heard from you. Is that a fair summary?

MR. COCHRAN: That is correct.

MR. ALMAS: Okay. Thank you.

MR. ANDERS: Any other comments?

Yes, Linda.

MS. SEELEY: Thank you, Dr. Cochran. I have one question.

Now, you mentioned that you were -- some of your input was about safety concerns that the State has. I thought that all things having to do with radiation, or, you know, the radiation part of this thing, were not under the purview of the State. I thought you were completely preempted by the NRC.

MR. RIDER: I can address that. (Zoom inaudible) the concept that storing this in dry form (Zoom inaudible) and try indicating that the fuel moved from the pool, is just I think

something that (Zoom inaudible) that it seems to be the safer location for the spent fuel.

And so in that sense, we spent a lot of time working on the timeline making, you know, looking at what the campaign would like and how quickly we could wind down the storage pool, the wet storage.

DR. COCHRAN: Let me -- I can add a little bit of clarity. You are right, you know, the NRC does preempt State on many elements of safety, handling, material, licensing, et cetera, but that doesn't mean the State doesn't have a place to play in that sphere.

We do have thought power. We can apply that both with regards to, for example, coastal commissioning, land requirements, environmental cleanup requirements, CPC rate recovery. So there are elements that the State can engage with the utility so that both parties, you know, come to an agreement that, you know, as long as it meets NRC requirements, the entities can add additional elements.

Furthermore, just because the NRC preempts the State, doesn't mean that they don't listen to the State.

For example -- I will give you an example. I won't get into details, but about a month ago, the NRC reached out to us to ask for input on an issue that we have been engaging with them for over a year. And they had a briefing with myself and two other members of other state agencies. And they listened to our feedback and they gave us a heads-up. And this came

out of a letter that the State sent the NRC, highlighting our concerns with an activity that the NRC had, at the staff level had approved, but the Commissioner had yet to vote on.

As a consequence of the State's input, the Commissioner informed the staff that, you know, we don't agree with this, the State opposes it, we see some concerns with it as well. We want you to redo this, and, you know, go back and come back with something new.

So that is an extent where the State to its engagement with our federal partners, as well as utilities, we can bring to the table additional elements.

So does that -- does that address the meat of your question?

MS. SEELEY: Yes. Thank you.

MR. ANDERS: Any other questions, Kara?

MS. WOODRUFF: This is a little off topic, but I wanted to dive into it before we get into the on the new cask system. And it goes back to what Maureen was saying earlier in this meeting.

When we last met in April, you had discussed briefly this new $6 billion program by the Department of Energy, to fund the continued operation of plants, that may be we are suffering from economic insecurities.

And, at that time, you reported that those dollars were just not available to Diablo because that was not the circumstance of this plant, and therefore, Diablo Canyon PG&E

were ineligible to take advantage of those grant dollars.

And then I think what you said just tonight, was the Governor has now submitted a request to the Department of Energy, saying change those policies so that possibly Diablo Canyon could be eligible, is that what you were saying earlier?

MS. ZAWALICK: So I guess my first -- yes, thank you, Dr. Cochran. I will respond to Kara here.

So two-part question: So what I said in the April 20th public meeting, was that the way the DEO program was set up, was for plants that were not -- that were shutting down because of fiscal financial challenges and so forth. And the reason why PG&E is shutting down -- or Diablo Canyon is shutting down in 2024 and 2025, because that is consistent with the energy policies of California. In 2016, it was not because of financial challenges or risks.

So secondly, that is still that -- I didn't talk about eligibility or our criteria, but that's just how the program was set up.

Secondly, the Governor's letter that was sent yesterday, I talked about, does request the DOE to consider what it means by cost of service utilities, and that California is, you know, going through this unprecedented time, you know, with wild fires, and lower hydro power and so forth, that they -- the Governor wants to keep all options open. And at the retirement of Diablo, you know, may make that even worse. And

so it was in the letter, it's publicly available, and it just basically called out a couple sections on the statements made about cost of service. And so that is basically what the bottom line of the letter is.

MS. WOODRUFF: So the Governor is asking for amendments to this policy. And if those amendments are successful, will Diablo Canyon/PG&E be applying for those federal funds?

MS. ZALAWICK: If eligible, you know, PG&E will consider applying for those funds. Since the statute would help the State by preserving federal funding. If the Governor would want to choose that option.

MS. WOODRUFF: And I think the deadline for that is sometime in early July.

MS. ZALAWICK: Correct. So last week, Edison Electric Institute and the Nuclear Energy Institute, on behalf of the U.S. Nuclear Industry, sent the letter to the secretary of Department of Energy, asking for an extension. They got a 47-day extension to July 5th.

MS. WOODRUFF: Okay. So by July 5th, we will know one way or another, whether PG&E is applying for those federal funds; is that correct?

MS. ZAWALICK: Correct.

MS. SEELEY: Okay. And so we don't probably -- we won't know probably much before that, or what is your expectation?

MS. WOODRUFF: Well, if we'll know updates, Kara and the panel will continue to give you updates(inaudible), but we

will give you updates first. And if the DEO responds to the Governor's office, you know, we will let you know that, if the criteria did change. You know, so we will continue to make sure you're updated on this, and, you know, what our plans are.

MS. WOODRUFF: Okay. Thanks for clarifying that.

MR. ANDERS: Thank you, Kara.

Any further questions? Yes, Michael.

MR. LUCAS: Thank you, Dr. Cochran.

You mentioned about the offsite, out of California lands I think the slide said, of storage. Was the proposal that, I believe Veronica stated last time at our meeting here, that they were working on licensure of an offsite location in other states, did that have any sway in the technical review of the proposal?

DR. COCHRAN: No. Because at the same time, there was another facility that was a joint facility in Coltech.

So to put some perspective on this, our agency engages with multiple states on this issue. We staff a couple committees that try to engage a partner with the DOE and NRC on issues of long-term storage and disposal.

And this has been an issue that many of the states, especially the western states, because, generally, we have been, sort of, the target for the disposal facilities. And we have a recent on nuclear waste, you know, as a region. So we've been trying to push for some term of solution, whether

it's interim storage or permanent repository.

The problem with any of the interim facilities, is that they're going to have a finite capacity, there's going to be a question of the DOE has sort of committed to moving fuel from decommissioning facilities, to what they call (inaudible) to these facilities, but then we still don't have a developed transportation campaign or program. We still haven't really identified who is going to be in the queue, how they're going to move that queue. You know, are they just going to move, you know, a couple from one place, and then move to another place?

So there is still an extensive amount of work that needs to be done on addressing the, you know, a long-term solution of storage of nuclear materials.

And to give you, sort of, a relative example timeline, we do have a facility in New Mexico, that storage facility, that wet facility (inaudible), and they handle Trans Granite, and their shipments that go on that every year, and they have been pretty successful at managing that program.

But that program took about 10 years to develop. It was very contentious in the beginning, but ultimately, it resulted in a better program.

So it's one of those issues that, you know, we saw an example previously, where a facility was granted a license to store spent nuclear fuel. That facility never received a single shipment.

And, you know, it's a question of, even if these facilities are granted a license, you know, how can we deliver it, when can we deliver it, who is going to be able to take advantage of that and what are the criteria?

And so that's where the State needs to continue to engage, and that's why we have partners in California utilities that want to, you know, dispose of these materials permanently, outside of their property and territory, and hand off the requirements to the federal Government as, you know, the way it was intended.

MR. ANDERS: Thank you.

Any further questions before we move on?

Yes, Bruce. One last question.

MR. SEVERANCE: Yeah. Dr. Cochran, you've mentioned the UCLA risk assessment. My understanding -- I've read at least a significant amount of that study, and I was surprised that it only compared relative risk for different transport modes, and not comparing storage, you know, stationary storage risks to that. And there were several variables that just seemed to completely fall outside the study parameters.

One is the risk of terrorist attack, which, of course, is difficult to really put a number to, but it doesn't seem that there's been enough discussion of about creating berms or sheltering structure for the casks, whether they're stored her or they're stored someplace else. And it does seem to me to be kind of an elephant in the room that people don't want to

talk about. And I realize that there's a lot of national security issues around what that risk actually is, but at some point, we should just be talking about it.

So to me, do you agree that the UCLA study was fairly limited in its discussion of variables that fell outside the parameters of the study?

DR. COCHRAN: Yeah. I wouldn't disagree with that statement. It's constrained. There are factors that weren't taken in because they were outside of the scope of the focus.

And, you know, I will -- one of the issues that has been relatively contentious between the federal government and the state, has been issues of security. And it's one of the factors of the State and the feds have always struggled with, sharing of information, requirements with regards to, you know, what the federal requirements are and what the States are requesting or expecting.

And that's one where, you know, to some extent, the locals and others can bring, you know, can make that an issue, right? So if the local government says hey, this is a concerning factor, we would like you to look at it, then, you know, that can advance that concern higher up the tier, right?

So the state agencies can make recommendations, but it's always one of those factors where, you know, a little bit of additional push, or a little bit more engagement, can have different results, right? And so there are some ways for regional action and regional engagement. There's also

opportunity for local engagement, local pushes on that. And then it, sort of, just becomes a factor of life, well, what are the limits the federal government has, how can we work together to expand those or improve those, or, you know, address those concerns.

MR. ANDERS: Thank you.

Let's move on to our next agenda item, which is public comment. So it's an opportunity for people here in the auditorium and for people on Zoom call to make comment on the discussions that you've heard so far.

We do have a more thorough discussion of the actual spent nuclear fuel storage system later on in this meeting, and we have another public comment period after that. So we'd ask you to hold the questions on that particular system until after you have heard those presentations.

Anyone who would like to make public now, please fill out a blue card here and give me a card. And anyone on Zoom call, please raise your hand if you would like to make public comment.

UNIDENTIFIED SPEAKER: And, Chuck, we do have somebody online, Eric Greening has raised his hand.

MR. ANDERS: Okay. Anyone here in the audience? Doesn't look like it. So we will go with -- we have one person online, and that is Eric Greening. So, Eric, please go ahead. You should be able to --

MR. GREENING: You have three minutes. Please state your

name, your residence and any affiliation also.

MR. GREENING: I'm Eric Greening, and I live in the north county.

I'm hearing feedback. Are you hearing feedback? Okay. That may be gone now. Can you hear me?

MR. ANDERS: Yes, we can hear you.

MR. GREENING: Okay. Relative to the revelation I think I just heard, that if the criteria were changed, PG&E might consider applying for the funds that would enable continued operation.

If that is what I heard, then my question is: Would PG&E continue working with the County on its application for decommissioning based on the assumption that it would ultimately decommission whether or not it received the funds, and whether or not it extended its license?

With obviously some major changes having to be worked into the process and into the environmental review, we don't know whether that would mean a cooling tower, we don't -- we would imagine it would have to mean a larger pad for the -- there's all sorts of things that haven't been thought out with an extended time scale.

But would it continue with the processing of its application for decommissioning, or would that simply be abandoned if it received the funds and left sort of a stranded cost?

And I might just bridge to a follow-up on one of the

questions that's already in the record that's not specific to the system, so I guess this is the time to ask it now, and that has to do be the timing, that if the County's permitting process and environmental certification process is completed prior to the NRC process, it's asked, essentially, how the safety issues, the NRC is considering would be handled, I have the additional question of how would the County be able to make the required health and safety findings for this project without knowing the NRC's ultimate disposition of the questions?

So those are some connected process questions. Actual substance questions with the system, I guess we will wait until later, but those are some process questions that definitely came up.

And I certainly would urge caution about changing direction from a decommissioning process into which a lot of detail has gone into any other kind of a process.

And I can tell you right now, if the -- any kind of license extension would mobilize another attempt to do seismic blasting in the ocean, there's going to be a tremendous upsurge of public alarm and everything we can do to make sure that never happens. Thank you.

MR. ANDERS: Thank you, Eric.

I'm going to turn this over to Bill Almas to moderate this, because I --

MR. ALMAS: You did it all, so that's fine.

MR. ANDERS: I apologize, Bill.

MR. ALMAS: No problem. And are there any other questions in the audience or online?

MR. ANDERS: There is nobody online with their hand up.

MS. ORTIZ-GREGG: Good evening. Hello. This is Supervisor Dawn Ortiz-Legg. I just wanted to hear professor -- or Dr. Cochran once again state the response to Mr. Severance's questions in regards to additional study in regards to the safety aspects or the external aspects of the UCLA study. I think it was, "What's your question, Bruce?" And then the response was that should local governments be interested in further information, that they could pursue proceed with questions. So I wanted illumination on that a little bit more, Dr. Cochran. Thank you.

(Court reporter clarification)

MR. SEVERANCE: That's the District Supervisor for the county of San Luis Obispo, so go with that.

MR. ANDERS: Dr. Cochran, you have the floor.

DR. COCHRAN: Yes. So what I'm trying to highlight is, for example, UCLA and the gentleman were sort of talking about was this with regard to the security concerns and the limited scope, I think UCLA study, on addressing the impact -- the risks of stationary storage. Is that the correct question?

MR. ANDERS: She said yes.

DR. COCHRAN: Thank you. I couldn't hear that.

So on the security side of the house, that's one of the

hard lines the feds have historically stood. And so the states have had to push very hard on that, and even then, it is one of those issues where we constantly have to go back and forth with them on.

So under the current NRC regulations, there's a lot of leeway on how a facility can store that nuclear fuel; cooling pool, dry storage, the two options.

Historically, California and many other states have pushed that dry storage is a better option. There's evidence of this as in the post Schema report, where they highlighted what the event did to the cooling pools, and what it did to the SPC, and it did relatively nothing to the SPC. Where it had actual impact to the (inaudible).

So if we look at the security factors of the spent fuel system, right, so there are the federal requirements, utilities are required to meet those, there are some requirements that may come in as a consequence of their land use, of their land lease that they have to meet with the state to impose, there's earthquake requirements for California that other states don't have to meet. And then there's stuff beyond that.

Now, that stuff beyond that, is really that the NRC doesn't care whether it's implemented or not, as long as it doesn't impact NRC regulations or federal requirements.

So in the instance of say, do we want to build up a barrier, some visual, direct visual site, of this facility

from ground access? So that would be something that is beyond the federal guidelines, and isn't really a sphere that they would care about. So that would be something well, okay, so who is interested in this; how do we, you know elevate that topic higher and higher, such to the point that all right, this is a requirement for this facility that you need to add this additional element. There is also a the fact of who is going to pay for that?

Historically, cost-related power generation has come from two sources; the owner and operator, and then the rate payer. So then that would become an issue that okay, this has been identified as a concern, an issue raised by local government, local government is trying to push it, it's outside their scope, then you elevate it to the state agency. It's similar to that. Once it's elevated to the state agency, it doesn't need to go to the federal government, because the federal government is different than that.

So it's an issue that, all right, this is something that would require discourse with utilities, the local government, and the state agencies that are responsible of that if it's within the scope of requirement. And then we have to, like, advance that well, what do we need? How much is it going to cost? Who is the authority? What elements come into play?

Does that clarify my statement? Does that answer your question?

MR. ANDERS: She said yes.

DR. COCHRAN: Okay. Thank you.

MS. SEELEY: Dr. Cochran, Linda Seeley here, one quick question.

Did I hear you say just now that the State, by the California Energy Commission, could make berming happen to the spent fuel facility at Diablo Canyon?

DR. COCHRAN: That is outside of our scope.

MS. SEELEY: Who could do that in the state? Would it have to be legislative, or Governor, or -- I mean, could that happen, that the state could -- you just said that, right, the state could require it? Who in the state? How?

DR. COCHRAN: No. I said that it is a potential consideration that may be outside of the federal scope. So if the NRC says this is not -- we are in different positions, this does not impact our regulations, then it falls within the domain of other government entities, whoever has the authority to implement such activity, right?

So that is -- that is the difference between federal preemption and chain authority, right? The feds set a line, and as long as what's being requested does not cross that line, then it falls within the authority of others.

So a classic example, is that the Supreme Court ruled that states have authority with regards to classical things, such as land use, rate recovery. So those things fall within the authority of the state, right? Like land use lease, land use requirements, seismic requirements, the state implements,

et cetera.

So what I'm saying is, is that that question, if it's not a question -- if it's not curtailed by NRC, then that falls within the domain of the state. Then the question just becomes what agency has the authority, what entity could require that, who -- what processes are required to make something like that occur.

MS. SEELEY: Thank you. That's very interesting.

DR. COCHRAN: So step number one, you would have to clarify with NRC that this is not in violation of NRC regulations or requirements.

MR. ANDERS: Okay. Great discussion.

And, Darrell, I want to apologize for -- we have changed the process, and I'm so used to just doing it, I just accidently did.

MS. SEELEY: Chuck, I wanted to mention one quick thing, that Dr. Budnitz is here online through Zoom, and he is available to answer questions from the panel and the audience.

MR. ANDERS: So if any of the panel members want to ask a questions of Dr. Budnitz, with the Diablo Canyon Independent Safety Commit te, he is available to do so, and willing to do so, to answer.

DR. BUDNITZ: I'm here if you want.

MR. ANDERS: Okay. Thank you for being with us, Dr. Budnitz.

MR. ANDERS: All right. Our next item on the agenda --

MS. WOODRUFF: Hey, Chuck?

MR. ANDERS: Yes?

MS. WOODRUFF: I was wondering, since we are ahead of schedule, I was wondering if PG&E would be able to respond to the only public comment that we had from Eric Greening.

MR. JONES: Sure. Tom Jones with PG&E, I will answer the first, third of the set of questions.

His specific question, I think the most important and pertinent one, short-term ise, should the utility -- or should the DOE change criteria, and should the utility apply for funding, would the utility abandon the decommissioning process, and that answer is no.

MS. WOODRUFF: There was continued -- the sequel process, in particular, would continue as scheduled.

MR. JONES: That's correct. And then the other items associated with decommissioning, like the nuclear decommissioning cost triangle proceeding, funding for decommissioning, is required regardless of your operational status. So that application is (inaudible) right? We've done those every three years since the statute and regulations were interacted, so that would continue independent.

But the funding, remember Maureen's statement from the company, that would be an -- that's because there's a window of opportunity for the 47 days that the DOE extended, but that doesn't address the other regulatory framework and the state's policy, right? That would just give policy makers more time

to deliberate their action.

MS. WOODRUFF: Thank you.

MR. ANDERS: Thank you, Kara.

As Linda indicated earlier in the meeting, that the panel has compiled some 70 plus questions for PG&E on the spent fuel storage system, that they are contemplating implementing. And so the next segment of our meeting deals with the discussion of the new cask system and the response to the public's questions.

So the first speaker is Tom Jones with PG&E. Tom?

MR. JONES: Thanks, Chuck.

Good evening, everyone. I think this is my fourth appearance for the first scheduled one here, so we're going to go through a quick overview, and then dedicate the balance of the time to our partners from Orano tonight, to go over the system capabilities.

And for those of the public, this is the second in a series of three initial efforts to gain information to scope what people are curious about. The presentations tonight, particularly from Orano, provided to answer the bulk of the questions. We will be producing a list of question back to the panel for their review, and ultimate publication on their website.

Additionally, we are in the formulation stages of an open house in the coming weeks to months, to take people out to the location themselves, to see the current storage system, and

then also our energy education center, have the opportunity to interact with subject matter experts.

So a little background on the topics here, I'm going to put those over on my background here from the April 20th meeting, some of our layered approaches for safety, and the project phases, and key takeaways, and next steps. And I believe one or two of my slides have already been shared from Dr. Cochran, so I will be briefer on those and talk about the utility perspective on that process, rather than the regulatory perspective.

So, again, we announced that Orano would be -- was the selected vendor. Some key concepts that achieves the mutual safety goal of community, utility, and our regulators of emptying the spent fuel pool at a reasonable time, that when that is achieved, that pulls the decommissioning project to the left.

Our current technology would be about a 10-year loading period, perhaps a little longer. But the dry cask storage from all vendors have evolved over the years, and they can handle a little more formal load now. And so with that, that affords us the ability to move the fuel sooner than the current licensed system, but we have 58 casks stored.

So this picture here, is a conceptual layout of how the horizontal system (inaudible) pad adjacent to the current loaded system.

Now, this is an early iteration, the Orano's team,

tonight, their image will be a little different. It will show a few more of these casks, but this was just to layout to show folks how things look on the (inaudible) and we will go from there.

So some key reasons of why they won the contract, with the horizontal dry cask storage system, gives us a couple of advantages, and moreover they're the industry leader in it.

The current system is licensed by the NRC. Orano will talk about more of that. They are going to chew that up to some thermal capabilities. And then when we looked at this system, and things like feedback to the utility directly, or panel strategic vision, this addressed things, key concepts that the panel raised to us that we went over in the April meeting. Like an 80-year period for the two licenses, right, the design measure exceeded that. So things like warranty information and support, that went into the scoring system to make sure that the vendor would be with us for the long hall.

And it -- pardon me, been speaking without the benefit of the slides. I apologize.

Okay. So now you should be able to see the conceptual -- let me go back for just a second. I apologize.

So what you see from an aerial view now are the two systems side by side we in lay(inaudible) outlined in gold that shows the frontal view of the horizontal storage system, and a transporter bringing up a transportation cask to load one of those storage modules.

(Slide played).

Okay. So I started to address these points. I think the bottom line is that Orano is a recognized provider in the industry, recognized leader in the horizontal storage systems, and, again, the technical review satisfied a lot of stakeholder feedback that we received as well.

I talked about the background. Dr. Cochran went through this in segments. I'm just going to focus on the right third, because I thought he did a really nice job of that.

We're in the final design and preparation for licensing documents. What does that mean? The modest amendments to Orano's existing license will be filed with the Nuclear Regulatory Commission by the end of this calendar year. And with that, that will start a venue for the technical review for the end of regulator and Nuclear Regulatory Commission. And if parties wish to participate in that proceeding, they would file with the Nuclear Regulatory Commission.

We expect that process to take a couple of years. Their review of the license amendment, and you can see in this diagram here in the middle third of it, far right of the screen, there would be some public comment period, potential public participation, and then we expect the NRC will take the action in 2024 or 2025.

And one of the things we're looking at, and you see on this slide, we're on the far left, where we are today.

So we're working with Orano when they're doing their

licensing update, finalizing design. We will maintain that relationship like Dr. Cochran talked about with the Diablo Canton Independent -- excuse me, with the California Decommission.

Dr. Budnitz is on the line, you see the center circle there, that's the Diablo Canyon Independent Safety Commission. They will go into deep dives on this as well, and then we will maintain our Independent Technical Advisory Committee, which, again, is comprised of a former chief nuclear officer and some retired NRC individuals.

So we will collect that input and be sure that that's helping in form our view of Orano's work. And then when that submission goes to the Nuclear Regulatory Commission, they will adjudicate the application and make sure that it ensures public safety.

So a couple phases of the project, we're in the design, licensing, and manufacturing phase right now, Phase 1. Then we have the transfer spent fuel in 2026 and 2027 based on the current schedules. And this is all derived from that regulatory timeframe I showed you, which was pretty conservative, assuming about a three-year approval. And then once it's loaded, we have ongoing are and maintenance of the system, and we will be working closely with Orano on that.

And then when available, our ultimate goal is consistent with the State of California's public policy and the federal policy, which is to ship the fuel to a repository.

So key takeaways, we are going to conclude with that; rigorous oversight with independent minded folks, that's been helpful to us. It's made a better risk study for UCLA, it's made for a better RFB, and we're going to keep that throughout this process. And we are currently, again, in the first phase of the new system.

And through tonight and our ongoing engagement to the panel, through the Independent Safety Commission, and directly with our community members and our customers, we will keep up the public outreach and solicit feedback.

I think with that, we will go ahead and pause here for questions and bring our Orano case up.

MR. ANDERS: Do you want to go ahead and start with the presentation? Do we have time to ask questions of Tom?

MR. ANDERS: Yes.

MR. JONES: Go ahead.

MS. WOODRUFF: So I took a recent tour to watch that inspection. And I think what I learned, is about a third of the 58 casks that are out there right now are licensed, ready for transport, but the other two-thirds or so still need that final license in order to be moved offsite.

So my question is: With this new system, once it's fully licensed, and once you have those casks in place, are they going to be ready to transport immediately, or will that be, kind of, a two-step process like we've seen with the old casks?

MR. JONES: I will let Orano address the technical portion of the timing. But the contract and the licensing effort will include transportability on the initial phase. But I will defer to the gents here for the timing of that.

MS. WOODRUFF: Okay.

MR. JONES: (Inaudible) licensing activity that's not complete on the current system, we worked with our lender Whole Tech recently on that, we expect to have that finalized within the next year. So still long before our operations conclude or there's a location to ship, and Orano has that same commitment. I will defer to Prakash here for that.

MS. WOODRUFF: Okay. So you're saying within the next year or so, all (inaudible) will be ready for transport, and when the Orano casks are out there, they will be immediately licensed after construction for transport?

MR. JONES: That's correct. Yeah. That licensing will occur before the construction in the case of the Orano system.

MS. WOODRUFF: Okay. Great. Thank you.

MR. JONES: Okay. With that, I will turn it over -- oh, Linda, you have a question.

MS. SEELEY: Yeah, I have a question.

You were talking about the timeline of transferring the S&F out of the pools and into the -- okay. So that -- that's predicated on Diablo Canyon shutting down, I would assume. Can you do a -- has anyone in the whole world ever done an offloading of all of that spent nuclear fuel -- would you

still offload the entire spent fuel pool inventory if the plant is still running?

MR. JONES: The short answer is no. And that relies on the B5 Bravo rule making from the NRC.

For those at home, what that comes to is, in the ultimate -- I'll back up to the back up on the safety of the spent fuel pool, is that it would require there was a loss of inventory of water for cold assemblies, it's called checker boarding, that face perpendicularly every new fuel assembly that is recently discharged. What that provides, is an additional lawyer or heat safe. That is regulatory commitment right now with the Nuclear Regulatory Commission. That would remain in place.

However, regardless of outcome, we will continue with the new system. So there are at least three outcomes today that are available. One, is decommissioning as proposed. The second, is we continue to operate through 2025, but we do not obtain the regulatory approvals from the State of California or the County of San Luis Obispo, and we end up in some form of safe store. We would continue with the Orano system then.

If we have continued operations, we will continue with the Orano system. So regardless of any outcome, this will be our system for all fuel assemblies that are loaded going forward.

MS. SEELEY: You haven't unloaded any fuel. I mean, you haven't done any transfers of fuel out of the spent fuel pools

for over four years, right?

MR. JONES: Correct.

MS. SEELEY: So those pools are really, really, really full. And that the big plan was, that you told us for the past four years, was well, we have this great idea. We're not going to unload anymore fuel, because it will be better, because we're going to shutdown, and we are going to pack those spent fuel pools tighter than they've ever been packed in the history of Diablo Canyon.

And so what are you going to do if you start -- I mean, if the plant keeps on running, what are you going to do? How are you going to manage this? What -- do you change your -- I mean --

MR. JONES: We would clearly have to make dozens of adjustments to operations, including fuel management, absolutely. So it would change the amount of fuel we load at any given time, and we would have to schedule new fuelling outages as well. But that's all speculation. And, again, the state policies haven't changed. So until there is a change, we are aware of some scenario planning, but this system serves any outcome for us right now.

MS. SEELEY: Okay. Thank you.

MR. JONES: And with that, Roger and Prakash, over to you.

MR. MAGGI: Thank you for having us back here, you know, to discuss our sytem a little further and deeper.

MR. ANDERS: Bob raised his hand, so he may have a comment on the last statement.

So before we go ahead, Bob, could you go ahead.

MR. PAVLIK: Hi. Do you hear me?

MR. ANDERS: Yes, we can. Go head, Bob.

MR. PAVLIK: I'm a member of the Diablo Canyon Independent Safety Committee, and I just want to state a very brief thing about our role.

We are just starting an in depth evaluation of the safety implications of this new decision. We are going to be doing it over the next short period, but we've just started.

Our first dive into it, was just last week, a couple of our team were at the site and they had a meeting with the PG&E people to answer questions and get started on this review, and we're going to be doing it over the next month or two or three.

I want to let people know that we're having a public meeting in Avila Beach on June 22 and 23, and this topic is sure to be on the agenda. We don't have the detailed time for that yet, but it's sure to be on the agenda, and the public are welcome to listen and participate as they usually do.

The other comment I want to make, is that our remit is to look at the safety implications of this new scheme, and if there are variants of that scheme of the kinds that Tom Jones just mentioned and talked to, because of whatever happens in the future, we're going to be paying a special attention to

understanding the safety implications of those variations if -- if various options appear that aren't yet real now, but might be real later. I'll just pass that along.

MR. ANDERS: Thank you, Bob.

Go ahead with the presentation.

MR. MAGGI: All right. So with all that said, we gave you an overview last meeting, about a month ago, a fairly high-level overview --

MR. ALMAS: Could you just identify -- you didn't introduce yourself.

MR. MAGGI: I'm sorry, Bill.

So I'm Roger Maggi. I'm the Chief Commercial Officer for Orano TN. And with me -- go ahead.

MR. NARAYANAN: My name is Prakash Narayanan. I am the Chief Technical Officer for Orano TN. My role and responsibility for the engineering, licensing and R&D for storage and transportation products.

MR. ANDERS: Thanks.

MR. MAGGI: So tonight, we are going to take a deeper dive into the technology. I'll apologize in advance, there's a lot of words on these slides, but I felt like that was necessary, so that, you know, as you take this away or the public takes a look at these slides, there are complete sentence, complete thoughts, things that can be looked at in the future and you won't, kind of, wonder what I said, or what Prakash said. There's actually information there that's very

usable to you. So we will cover it as efficiently as we can, but certainly ready for a good dialogue here at the end of it.

Okay. So I will start with a little bit of repetitive information, you know, for those that were here last meeting.

(Inaudible) does provide end to end support for all handling of radioactive material. That's uranium products that are dug from the ground and then turned into usable fuel commodities from our mining conveyance enrichment group. So we transport that material, we transport the fresh fuel, the fuel that will go into the reactor, (inaudible) reactor or others, so fresh fuel from the vendors, we are responsible for transporting that.

On the back end, the spent nuclear fuel, we store and transport spent nuclear fuel. Spent nuclear fuel has been transported many times in the U.S. it's constantly being transported in Europe. We have a very good handle as a company on that process, as we are also the world leader in recycling of spent nuclear fuel. We have to transport that, and it's moved every day across Europe. We do posses that expertise here in the U.S. as well.

We also handle all the waste from the -- mainly from the decommission reactors, but also from the DOE and all of their activities. And then hardware that is in the pools, but is not actually fuel, we can take care of that as well, process it, ship it, and get it out of the site.

So I thought we would start with an overview of our

NUHOMS system. So if you look at your graphic and I can actually (inaudible) of the point as well. I'm not going to necessarily go in the order of the numbering, so if you follow the mouse, you'll see where I'm pointing to.

This is the actual canister that we call the canisters instead of casks. What we refer to as a cask, is a similar unit, heavy wall with a bolted lid.

All right. So we call these canisters, dry storage canisters. That is the canister once it has been inserted into the horizontal storage module. So what you see here, what I'm outlining, is one single module. And we will discuss in detail how, in the case of Diablo Canyon, and is the case of SONGS, we actually fasten these together with high-strength rods for the high seismic capability.

But this is one HSM, horizontal storage module. The walls on these are twice as thick as the walls on your current system. So you currently have 24-inch walls on the vertical system. You have four-foot thick high-strength reinforced concrete walls on these systems. The roof is four-feet thick. The front wall is four-feet thick. The end walls with the combination of the side wall, creates a four-foot thick, very high-strength concrete module. Same type of construction you have on the reactor building itself, that the (inaudible) reactor that the fuel comes from.

Just to, kind of, give you an idea of what goes into the design and construction of the module, this is not your normal

concrete. This is not your sidewalk create that, you know, you have to put crack filler in every winter, or at least I do in Pittsburgh.

So the way that the canister gets down to the pad or up to the pad, is with the transportation cask. So this cask is actually put into the spent pool, and you'll see a video on that in a minute, with the canister inside of it, a fresh canister. It is then loaded with fuel and then taken out of the spent fuel pool for processing. Once it is processed, which means the fuel is dried and the lids are welded, and everything is leak checked, then this cask is put onto the transporter, and brought down -- or up to the (inaudible) in this case.

The insertion takes place from a hydraulic powered land, and that is a pushing mechanism that actually, you see the hole right here, that actually pushes the canister into the horizontal storage module. There's an alinement process done to ensure that everything is straight and minimizes the friction between the canister and the rail system.

Of course, this is the base mat of the itself.

So you have one HSM, and the one next to it. And then in between those, if you look over here where number three is at, that is the vent path. So that's where the air, ambient air, comes into the system. And you will see pictures later, you would be able to look straight through from one side of this array all the way out to the other side of the array. There

is nothing in that space. So air is free to flow in, and then there are side events.

So along this wall right here, you would have a side event that goes under, underneath, and you will see a video of that. It will be more clear later on.

So the air will go in through the bottom, cross under the HSM, and under the canister sitting here, or here, and then it would flow up around the canister and come out the top vent. That top vent is actually between two of these HSMs. It's not directly over the top of the canister, so it allows the air to move around the canister and up. So that's the vent path for both this canister and that canister. And that also prevents water intrusion.

If you have the vent directly over the canister, you could definitely have water get in there, which is really not a big deal, but we don't like the canisters wet in the presence of salts, because we don't want to form bonds that eventually could start a corrosion of that. So the vent is offset from the canister itself.

Those are the main components, so I think I'll move on from there. If there are questions later, I think they will be answered from the videos.

On the loading process itself, it's a very efficient loading process. It's very repeatable. It occurs over three and half to four days. And that's important, because for the plant, their resources are limited. And we're talking about

plant operators, RP support, radiation protection personnel, security personnel, the plant project people. So all of these people are needed in combination with the Orano team to actually execute a loading.

But when we start these loadings, usually on a Sunday night, with the fuel loading, we will walk through the process here, but we usually finish on Wednesday evening, Thursday morning, so basically you get into that routine.

And the plan for Diablo Canyon, as I stated last meeting, is to only work on that one-week schedule. There's no need at this time for a 2/47 operation like we did at Duane Arnold recently. So you won't have a continued -- you know, I won't start another canister on Friday as soon as I finish this one. I will wait until Sunday night to start that next canister. So that limits the work hours, keeps you in your work rules, the number of teams that you have to have. So it makes for a good efficient process. Everybody knows on Sunday what we are doing, everybody knows on Wednesday what we are doing, so it really gets into a nice rhythm.

So on day, we load the used fuel assembly into the canister. And there is a note here that the canisters are made in Kernsville, North Carolina at our facility. And this is done under water, you'll see that here in a minute in the video. Then the transport cask is taken up, you know, out of the pool. It's dewatered. Basically you take most of the water out that you can suck out with normal mechanical means,

the lids are welded in place -- actually the lids are welded and then you remove the rest of the water, and then you go through a drying process to ensure that all of the water is removed. That's vacuum drying process.

And then once that's is done, you finish the welding on the top of the canister, you do your leak checks, and then you actually, on day four, transfer the canister vertically out of the spent fuel pool onto the skid where it's laid down, and then you go up to the tow path.

So that's all -- that's all words right now, but we're about to see a video that will kind of make that much clearer.

So can you play the video for slide 6, please.

(Slide 6 was played).

MR. MAGGI: So this is the Duane Arnold campaign. If you remember, you know, we did a full pool offload that just completed April 10th of this year for a plant that shutdown in August of 2020. So that was 20 months after they shut down, but we completed the full pool offload.

So what you're looking at here, is the actual spent fuel pool with the fuel assemblies in it. You're going to see an accelerated time lapse video here, but this is looking from the refuel bridge. This is what the operators see when they're looking down, and that is a fuel assembly right here that has been latched and is being taken over to the canister.

So what you're going to see, is it's going to go through this gate area, and then you're going to see the round cask.

So that cask has a canister inside of it. All right? Remember that cask goes back and forth, each time it takes a new canister.

So there's currently a canister sitting there waiting for this fuel. We will watch that go. We never move fuel this fast. Some people wish we could.

So in your case, this is 61 assembly. In your case, it will be 37. In a boiling water reactor, the assemblies are much smaller, so there's more of them.

So, again, this is your transfer cask, and inside, where you see this basket, that is a canister.

So once that fuel has been loaded and verified that it's all right and in the right orientation, then the transfer cask is lifted out of the water, it is decontaminated as it comes out, and it's taken over to the processing area.

So now we're at that platform that goes around the cask, once it's in place. Again, the process will bring over three pieces, and will you see more description on those later, you will have a top shield plug, which is thick stainless steel plug, and then two lids, an inner and an outer top cover, and those are actually welded.

So once that welding is completed, then we can do the final drain down and the vacuum drying. I don't think the vacuum drying is shown. So once that canister is dried and fully welded, and is leak checked, to ensure it was a good seal, then the canister transfer cask with a canister in it,

is brought over, put onto the transporter and down-ended for transit out to the agency. And the tugger will take the transporter up the hill.

MS. SEELEY: Quick question: How do you get -- you said it's sealed. How do you normally take the -- how do you get the water out of a sealed thing?

MR. MAGGI: It's welded. The lid is welded, but you have a syphon and vent, which are holes in the top of the can. So there's a syphon and a vent, where we can syphon water out, and then we perform the vacuum drying process. And once we validated through the process parameters that we've got all water out, and there's a whole procedure for that, then we can just weld those little coins, basically on top, to finish the can.

UNIDENTIFIED SPEAKER: I have a quick question. Does the spent fuel facility, existing facility at Diablo Canyon, have to be modified to handle this system?

MR. MAGGI: So right now, you've got the pad. The pad is there, but it's got hold down rings for the existing vertical systems that are already installed, and we know that and we will be taking those out, and then grouting, you know, any exposed carbon steel and then levelling that concrete pad.

UNIDENTIFIED SPEAKER: I was referring to the fuel handling building.

MR. MAGGI: Oh, I'm sorry. No. We've done walk downs, multiple walk downs of the fuel handling building. And, in

general, if you can load vertical systems, because they do take more clearance to maneuver, then you are in really good shape to handle a horizontal system. So we do not see that there are any modifications needed to this fuel building to use our system.

And the crane is there to handle the door. Some sites handle the door with, you know, large forklifts and handling devices, but cranes are also commonly used.

Let me back up for just a second.

So you can see, as the entire cask is being pushed back to the HSM where it's already been alined. You see that there's basically a cut out around the opening of the HSM. That's a mating cut out, so you actually have a boss there where a cask actually fits into the HSM so that there's no gap around the outside of that. Not a great picture of that, but I wanted to point that out.

MS. SEELEY: What does a cask -- the canister roll on?

MR. MAGGI: So there are treated rails inside of the HSM. They are treated with an anti-friction coating, but they ride -- and I think we've also got better views of that in future slides, but it's a set of rails that take the load of that canister.

All right. Let's see if we can get back to the presentation.

All right. So I'm going to turn it over to Prakash now, because if you let me talk, I'll take two hours of my 40

minutes, and you'll go through more of the technical details of the system.

MR. NARAYANAN: Now, really, once again, it's an honor and a privilege to, you know, discuss our technology today, and we are here to answer questions. And if during the presentation, this -- during my explanation, if you find information lacking or need clarification -- and I know my system -- so, I would assume, like, some of these acronyms, like BSC, HSM, if they sound confusing, please feel free to stop and ask questions. Okay.

Rather than talk about the overall system, I would like to focus a bit more on our canisters, of course, on the HSM, as well.

We call our canister the DSC or dry-shielded canister or dry-storage canister. The DSC consists of a cylindrical shell, which is the outer shell, made of stainless steel. And it has the basket, which is the gridded structure inside. The basket is composed of multiple plates.

In this case, for the 37 PTH, specifically, that'll be used to Diablo Canyon. The EOS system has a -- a grid of three types of plates. One is a steel, which provides structural protection. It is a very high-strength steel. And then, it also has a coating on it that enhances (inaudible), makes it good for corrosion protection, as well as provides some amount of heat transfer.

It also has aluminum plates, what we call the conduction

superhighway. That actually conveys the heat from the fuel assemblies in the compartment to the outside. That's what they really want, so that the air within the H.S.M. can then, you know, take away all of the heat from the canister.

We also have neutron absorption material, which is a borated aluminum material. So the basket is, basically, an eggcrate or an interlock arrangement of the stainless steel, aluminum, and poison plates. And then, outside, because we have a rectangular structure, we do have what we call rails. Rails that, basically, a cup-shaped structure that are attached to the basket plates that transform the shape of a rectangular structure to a cylindrical structure. So, of course, they also provide significant amount of heat transfer, again, taking away all of the heat and putting it on the basket.

We do have three covered plates that are mentioned. At the bottom, we actually have a very thick forging, which is welded to the shell, and that -- that has the gap mechanism to which you push the canister in.

At the top, it consists of three plates. The sheer plug: A primary objective is to provide bug-shielding to the workers when they are actually working on -- on the welding operations and ceiling operations. You do have two covered plates: The inner top-covered plate and the outer top-covered plate. You may actually see the small holes on the -- on the top of the -- the top of the plate, that -- that is where the venting and

syphoning action takes place. For the out -- inner top coat will be first welded, and then the water is drained, and then, of course, vacuumed dried. Vacuum drying is just, you know, having a vacuum and using the heat of the fuel to further steam up all the water, remove it. And then from late testing of it, and then there is a procedure for that in my -- for the circulation that ensures that that ceiling is maintained and also lid-tight to the criteria of lid-tightness that's required.

And then we do have the outer top-covered plates, which is also welded, which is the, what we call, the aluminum confinement. So there's actually two confinement boundaries, two building boundaries for the canister.

Okay. Next slide.

Okay. I talked about the design features, but the most important one is actually how we optimize the heat transfer of the -- of the system. We actually have special materials -- that is that -- materials and coatings.

And then, subsequent, I will show you that we also size the thickness of the aluminum plates in such a way that the most important regions of the basket actually have more aluminum, it can be more heat.

So our basket horizontal system has this unique design feature, and, also, I should say, an additional margin, where we do not credit for any connection within the basket. All of the heat transfer is assumed or calculated to take place

purely by conduction and radiation, thereby, giving us an additional margin. It's could -- it's probably 10 to 15 percent that we have not entered it into our calculations.

The other thing is about horizontal. The horizontal position itself offers a much larger surface area. If you imagine a cylinder inside a rectangle arrangement. Inside the HSM, there's actually more air volume between the canister and the HSM, or the horizontal storage module, that would then allow for much more uniform flow of air. I'll show you a slide, as well, that shows how, you know, what kind of flow takes place. Unfortunately, it's not an animation. And then -- and that effectively conveys the heat from the canister into the environment.

And this is a -- so this is actually a description of some of the research that was done specifically to understand the margins that are available in the calculations and, also, understand the more characteristics of height on the spent fuel. This is actually a DOE-funded research that was required by the NRC as a time to gain more understanding of the fuel.

And we are very proud to say that one of our metal casks, the TN32, was employed for the study, and it was a cask was installed at the North Anna Plant with hydraulic fuel release, and it was a single cask. And the fuel was being instrumented, which means they will actually use to measure the temperature and pressure inside the cask cavity. This was

to provide understanding of the phenomenon, as well as understand the long-term storage implication of hydraulic fuel.

And -- and here, I go through a full piece of degrees of margins that we can say when we started the project what you see in these -- in FSAR means that we started the project like we usually do, it's (inaudible) features and -- and make the highest temperature possible. And we calculated something like 350 degrees as the highest temperature. And then on the very end of the -- on the -- you will see what actual measurements were done.

So measurements were done. And then in intermediate, the DOE also invited, actually, worldwide, not just the United States, but worldwide laboratories -- developed countries were interested -- laboratories, research institutions, as well as cask vendors, like ourselves, to perform a double-blind study -- blind study where they would give the features of the -- of the -- of the system, features of the fuel, and have everybody calculate the temperatures based on their methods. And this is one way to benchmark methods, so I was -- this was because we submitted the application, I always had the highest number that you see here.

Next slide.

MR. MAGGI: Okay. Real quick before we move off this.

So, again, you know, assume temperature. Everybody in the world, all the smart people determining what they think it

actually is, and then the actual measurements turned out to be significantly less than that. So if you look at the -- really, it's the LAR 318 versus the 229 actual, that's margin.

MR. NARAYANAN: Yeah.

MR. MAGGI: All right. So that's the actual temperature, which was way less than anybody in the industry assumed it would be. And this was the only time that those temperatures have ever been taken in an actual loaded cask.

MR. JONES: If you spend just a little more time on this slide, the -- the --

MR. MAGGI: Sure.

MR. JONES: The FSAR, the LAR, those --

MR. NARAYANAN: It may be in the next slide.

MR. JONES: -- what is that, and best estimate. I mean, those -- those are calculations and then the actual.

MR. NARAYANAN: So let me start with the FSAR. I mean, the -- so, when we -- so the FSAR is the safety support that we submit to the NRC.

So when we started to do the project, the license fee, which is not -- gave us the fuel assembly that they had selected for loading into the cask. And based on that, heat load was calculated, which was 34.96 kilowatts, or 36 or 37 kilowatts. So we did the calculations for the peak climbing temperature, which is the measure of the safety, the limit is 400 degrees. And so we calculated the value to be 350, 348 degrees Centigrade. That represents the FSAR.

As the project progressed, we wanted more accurate numbers. So -- and then -- so then went back and refined the fuel assembly selection, and the fuel assemblies, that was slightly cooler. So we got -- we went from 34.96 to 32 or something like that. That's the second number, which is the LAR. That's the actual license application that went to the NRC for review and approval. And once the approval was done and the cask was being loaded, that's when the blind study happened.

DOE and us, because we are the technology holder, we knew what kind of temperatures were coming. So -- but then the challenge was put out, saying, hey, we are calculating somewhere in between the 320-degree range and the measurement was coming out to be the 230-degree range.

So our best estimate value was performed to see whether one can estimate the head load more accurately. Because the actual -- again, any -- any method to estimate heat load is always two to three percent more higher than what it actually is. And the other one is, obviously, calculating the temperatures themselves. There are several areas of convergence that vendors have to use for acceptance by the N.R.C. for licensing purposes.

However, in this study, it was to identify what are the reasonable rates to model them and that's what you see, best estimate. But even the best estimate numbers that federal institutes all over the world calculated, they are still

higher than what was measured.

MS. SEELEY: Why?

MR. NARAYANAN: Right. So, they --

MS. SEELEY: Why were the estimates so far off?

MR. NARAYANAN: Might be conservatism.

MR. JONES: Conservatism. Exact -- so, I mean, I'll give you a simple example.

The fuel assemblies in a fuel compartment are assumed to be perfectly centered, that there's infinite -- there's finite gap. Fuel doesn't sit very straight at 16-feet tall, so they make portions of the fuel assembly that may actually touch. The moment the fuel assembly touches the compartment, heat transfer is quick. That's one.

There's also a gap that people assume between the fuel assembly compartments and the basket -- and the basket to the cask itself. Again, we assume that there's a very small gap, as we fabricated it. But as the basket heats up, the basket actually touches the surface of the cask. Those kinds of gaps are very, very difficult to measure and very, very difficult to estimate. So it's actually more convenient and conservative to assume that there are gaps, and that helps with the heat transfer, and that results in the temperatures flowing up.

So we know that there are several points of conservatism. And this was an attempt to determine how large are they, and it turns out to be they are -- they are 30 percent off. So

that is a big, significant margin in our calculations because we actually supplied the cask. So we knew that there was such a large margin in just the calculated temperatures.

MR. JONES: The important takeaway, though, that's -- that's good, right?

MR. NARAYANAN: Yeah.

MR. JONES: So you assume -- you assume those higher temperatures, you are going to select fuel that keeps you below, right?

As it turns out, your actual temperatures are going to be much lower. So, 30 to 40 percent margin is built into the conservatism as the NRC requires you to take with all of these analyses. So that's the real takeaway.

MR. NARAYANAN: Yes.

MR. JONES: It's -- even though we say we're loading 50 kilowatts and we expect, you know, temperatures of X-Y-Z, it -- based on these actual studies, you're probably going to be 30 percent lower than that just because of the way they make you model the temperatures.

MR. NARAYANAN: Yeah. It's, like, one of the other options -- I mean, you would have seen it's ambient. We have to assume a 100-degree ambience, whereas, you know, you don't see anything the ambience. So that itself is a conservatism. That translates to margin, but that margin is still, you know, for additional focuses, and we don't use it. That's actually good.

Okay. So I would go up -- a little -- little more briefly, a little more on the seismic structure of this. Where it talks about that these HSMs, or the horizontal storage modules, are tied together. Tying means using -- we are showing -- these are -- again, these are exposed to show the design feature. But, in reality, they will all be encased in concrete.

These structures are tied side-to-side between the roots and the pieces. They are also tied back-to-back in -- in an arrangement that results in an eight-module structure. As we know, the modules are very heavy. They're full of concrete, and the canister's also heavy. It results in a very robust structure. Again, what we call a free-standing structure with a very low center of gravity that is able to absorb seismic energy. We have seen that -- from our calculations, we have seen that and (inaudible) of the data -- expect approached 116. A singular -- a single structure without any ties did not move.

So we believe that when these are tied together, just like they did with SONGS, and we found seismic -- that they used much higher than Diablo Canyon. Same methodologies implied for the design and analysis of data (inaudible). And we believe that these structures to be tied in the -- most of the seismic energy would be absorbed by -- by the structure sliding.

And the sliding -- again, when I say sliding, it's a --

it's in the order of a couple of centimeters. There's a lot of spacing in between the modular arrays, four-foot of spacing, so there should be no issue with respect to anything that's going to happen. And when I say sliding, sliding is a -- is a very small slide. But that's their design, specifically, to absorb all of the energy.

MS. SEELEY: Is that why they're not screwed down to the --

MR. NARAYANAN: That's right. Yeah, anchoring.

Anchoring, actually -- again, several studies have been done by the San Dimas' Lab, but I -- at the direction of the NRC following the focus of my rent, looking at robustment of structures on the seismic loadings, and it was determined that the horizontal system actually does not tip over. So anchoring is not needed, because we are not protecting the cask from tipping over. And the best way to dissipate energy is actually to let it slide. And, again, by sliding, I meant, you know --

MR. MAGGI: Less than an inch.

MR. NARAYANAN: Very, very small measure of distance.

There's also been some questions with respect to our license ability or license design. So EOS system is licensed, and then the NRC certificate of compliance, number 1042.

Amendment Zero was approved in 2017. Amendment Zero had a particular watt capacity - had the 37 PTH and the HSM. Everything was approved and certified by the NRC. We also

have description -- very detailed description about seismic in the Amendment Zero, which actually indicates that designs can be enhanced for a higher seismic buildings by following the methodology in what was done with SONGS, COC, Number 1029, which is the approved FSAR, which is now approved, loaded, and also the new for 140 years. And so that's directly referenced, the methodology and the use of the tieing, as well as the robust, you know, single-monolithic -- single-assumed module is already approved.

Subsequently, in Amendment 1, we also performed a -- for our metric system, which is the -- which is a two-tier system, a seismic analysis that demonstrated that it met all of the requirements of Diablo Canyon, therefore, the methodology for performing the seismic analysis and the methodology for tieing the systems together, the methodology for the stability of this multiple, but single monolith is already included and approved by the NRC. So we really don't need any further approval from the NRC for applying seismic changes for Diablo.

Okay. I'd also like to go the next step, which is about heat transfer. And, again, that actually brings into the actual scope for the amendment that will be submitted to the NRC for Diablo Canyon. Amendment 3 is what is currently being reviewed and it's very advanced stages of approval now. They have already completed the technical reviews and it is going into the making.

Amendment 3 -- one of the scopes of Amendment 3 was to

add a higher heat load, but for the (inaudible) fuel assembly, and that's very important for us.

PWR fuel assembly -- unlike the PWR fuel assembly are smaller, therefore, the previously approved heat load was 0.6 kilowatts. And we went from 0.6 kilowatts to 1.7 kilowatt. Now, 1.7 kilowatts for the BWR is, approximately, the same as 4.4 kilowatts or 4.5 kilowatts for the TWI, because it's much lighter.

One of the important steps that we did in this was to -- so the fuel is loaded, as you can see in a gridded structure, and what we call a loading of a heat-load zoning configuration, individual assemblies are loaded into all of these compartments and that loading actually dictates what is the heat load of the -- of the fuel assembly, where to place the fuel assembly, and what is the total heat load of the system.

This is exactly what I was going to say: The PWR fuel assembly, our design, has 89 positions developed into multiple zones. And because of multiple zones, you know, the heat from the Central Zone 1, the yellow highlighted here, that's the one that takes the meets the largest amount of, you know, resistance to go from the middle of the (inaudible). And the other ones are the ones that actually are very close to the -- (inaudible) get cool faster, and those go for the higher heat load. And so the heat load from the BWR to 48.2. BWRs are actually less efficient in terms of heat compared to the

piece.

But we ended up trying to come up with a very generic arrangement, which we call maximum heat-loading zone. And this helps us able to very efficiently load fuel in multiple patterns, as long as this kind of -- this kind of arrangement is made.

And it helps us in two ways: One, of course, the -- you know, for the purpose of considering them again, we ended up having to do a shielding analysis for about 80 kilowatts, which still showed that our system is very, very robust. And then, of course, for the common purpose, we actually have a detailed methodology that allows flexible loading. And as I said, this methodology, this -- this amendment is very close to approval.

And why we did this, is because we were using this as the same exact footprint to try and do the same thing for the PWR, as well. And this helps us quite a bit in understanding the challenges for the P and also familiar with the process of the NRC applied and NRCs also the same thing they previously approved. So that actually helps us in trying to establish a methodology that can be submitted again; that can repeat.

Next slide, please.

So what are we planning to do for this amendment, Amendment 4?

So we are going to retain the same exact total heat load, which is 50 kilowatts. We are going to increase the

productivity heat loads from a 3.5 kilowatts to, approximately, 4.5 kilowatts. That is what it's proposing to do. Although, we know that Diablo Canyon, based on our preliminary evaluations, the hottest fuel, based on the cooling time, will be approximately 2.2 kilowatts. That is also a bit of margin between what your license and what will actually be used for.

The other thing that we intend to do with this amendment is to analyze the basket aluminum plates. And the basket aluminum plates, you know, with the anodization, what it does is, it increases the (inaudible) of aluminum or the productivity, and it actually enhances heat transfer. So that's the other -- again, we expect that the temperatures will actually go down with the anodizing.

The scope of Amendment 4, as we said, it's already covered by Amendment 3. The NRC has already looked at it and it follows the same steps. And most importantly, we -- we did the exact same thing at Duane Arnold.

Brian talked about the 20-month off-load, but that 20-month off-load also involved a licensing action by the NRC, which we submitted a very focussed amendment to do the same thing with the PWR, increase the heat load from 0.9 to 1.7, that enabled us to load fuel faster.

And the approval process on the NRC on that, and our Amendment 3 pave way to the, you know, increased concerns that we have that this change should be simple. And so we -- we

believe that we'll end up using two loading patterns that will envelope all of the fuel at Diablo Canyon. It's -- it's also for our other operating plants in all -- we have several licensees that are also interested in loading and have loaded fuel at that 42/43 kilowatt range, and that will also help them do the same exact thing for their operating units.

We have been through many safety evaluations of these changes and the results indicate that everything is actually less. The temperatures, as well as the dosage, they are actually less than what was seen for the BWR system in Amendment 3. So that also gives us confidence and also a -- you know, a paved space for (inaudible) similar review from the NRC.

So let me go through a -- an important topic which people ask, it's about what are heat loads, how do they translate to temperature, you know, and why that 21-month, 22 months? Why a factory heat load? What happened?

So this is a graph. This is for a reasonably bounding fuel at Diablo Canyon of a heat load as a function of cooling time. And note that the fuel that is discharged is at a very, very high heat load.

MR. MAGGI: Before you go on, just take note that the bottom access is your years, years after shut down --

MR. NARAYANAN: Yeah.

MR. MAGGI: So one year after shut down, one point -- after shut down. So, you know, we will start loading in that

1 -- yeah -- 1.25 area, and then finish around that two-year period.

MR. NARAYANAN: Yeah. And people ask that question: Why -- why don't you do, you know, only a cool fuel?

So one reason is, it's too hot at 7 kilowatts. And currently, we don't have. I -- it's very -- existing limits, 7 kilowatts is a very, very high heat load. Although, I have seen trans, they actually transport some of their stuff, but it's very, very low capacity. They have very high heat loads.

MS. SEELEY: Quick question. Is the cooling period the same whether it's in dry cask or in the pool?

MR. NARAYANAN: That's correct, yeah.

Cooling time, for me, what it means, is the time starts with a zero when the fuel is discharged. And once it's discharged, it's -- that's the -- that's the age of the fuel after it's discharged.

And as you can see, the decay heat actually rapidly decreases in the initial periods of cooling and then almost stabilizes. I would say, you know, right around six or seven years, that's when it starts stabilizing. I'm not saying stabilizing means that it won't go down. It'll still go down, but it, very slowly, goes down. After that, it -- it reduces by 50 percent every 20 years. So the half life of decay heat is about 20 years.

So if you see at the -- at the sweet spot, which you're looking at, which is about one-and-a-half years to

two-and-a-half years cool, you know, there is a significant decrease. And a decrease of -- measure it as, approximately, 200 watts per month. And -- and Roger talked about how we load. We load one DSC every week. So I'm looking at 50 watts every week. And we intend to put about eight of these assemblies into one canister. So that's about 400 watts, half -- approximately, half the kilowatts every week, which means that when you load the fuel, by the time you load it, you have some control of it. And then once you go into HSM, close the door, your DOC is already cooled by half a kilowatt. Knowing very well that when you started the load, you already had a significant amount of margin. So that's the other margin that gets built up when you actually load hotter fuel sooner and -- and, you know, within a month, you actually -- or a couple of months, you're looking at a 10 percent reduction in the heat load because the canister just -- the fuel just cools rapidly.

MS. SEELEY: Then why not just wait until it's cooled a little bit, instead of, like, challenging it with super hotness? Why not just let it be for a while?

MR. NARAYANAN: There's two reasons for it. I mean, again, one: I think because the -- there could be some benefits with respect to risk associated with storage, wet or with dry. I just don't know which is the right duration.

The second, as I said, it's going to be where you are. So if you let it cool for four years, once you start loading, note that the decay heat does not reduce as a function of time

as quickly, which means that, between four years and five years, the -- the reduction of the heat load is not as substantial as it is at the beginning. So I would say that if you are loading the same average heat load of 42 kilowatts to 43 kilowatts, loading sooner is actually much less risk because the heat load rapidly drops. And by the time your quarry is cooled, it's actually -- that DSC or that canister is cooled much faster.

MR. SEVERANCE: Can you go back to your last slide?

All right. In your bottom two paragraphs, is your -- in your bottom paragraph, are you missing decimal points?

MR. MAGGI: No. That's total heat load per canister.

MR. SEVERANCE: Okay.

MR. MAGGI: Not individual -- not individual assemblies.

And at the risk of confusing further, if you look at -- where we would be loading in that -- slope that line. So if you -- if you load -- and we'll load up to 43 kilowatts on average no matter when we load, whether it's now or whether it's in the future, two or three years down the road, if you do that now, if you do that at this -- you know, start at the one-and-a-half, 1.75-year period, three, four months later, your whole can is cooler. All right? Now you don't have a 43/44 kilowatt can, you now have a 38 or 37 kilowatt can.

If you wait all the way out here, to your, you know, three or four, you just don't get that cooling effect anymore. So now if you load a 43 kilowatt can, six months later, you

have a 41 kilowatt can. And two years later, you have a 40 kilowatt can. So by -- by loading early and allowing that rapid decay initially, the whole pad ends up in better shape, margin-wise.

MR. SEVERANCE: Can you translate this into really clear risk variables? So, to just talk about temperatures is one thing. But I -- to me, it seems like reverse logic that you're reducing risk or safety issues by putting these into the dry casks faster, rather than over a longer periods of time. So I -- I'm not sure I really understand the answer to Linda Seeley's question, and it seems to me that you're giving us reverse logic. So I would ask you to just focus on risk.

So what is the risk of leaving it in the cooling pool for a longer period of time? Why -- why do you see that to be riskier?

What I read in the few places in your presentation with more of an emphasis on efficiency, which, to me, translates in cost savings, and I think a number of people on this panel is probably less interested in efficiency and cost savings. We want to understand risk. We want to understand what the impact on safety to the public might be, and I think that that's what the public is interested in.

And, you know, have -- in your evaluation of risk, the question I have to ask is, how -- how broadly that's been focussed. Like, the mistakes that I see in the UCLA study is that it's only within a certain parameters of risk. So to me,

why aren't we talking about berms? Why aren't we talking about what happens when a cruise missile hits this thing? It -- that, to me, is also another category of risk.

So, you know, I'd like you to explain why we should be excited about off-loading this in -- in record time.

Mr. Maggi, I recall you're -- saying you're -- in the April meeting, you were excited about how high-profile this project is because there are things that are going to be done for the first time. And I wasn't reassured by that at all. I don't think -- you know, I -- I am excited about the prospect of doing something for the first time when it has to do with sizeable categories of risk. So I think we -- we need to, like, focus on the risk and not on efficiency. That's my personal feelings.

MR. MAGGI: All right. So let me just start by stating that there is no more risk in moving this fuel at the, you know, 23 month to complete an off-load than there is in moving it at three and four years. There is no change in risk. We are not moving any faster. We're loading at exactly the same rate that we would load if we were loading four, five years out. If it's still a standard three, four-day process for loading fuel from a spent fuel pool to a (inaudible) that does not change.

MR. SEVERANCE: But you have not done it before; is that correct? You have not -- you -- this is kind of a record-setting project for you. You -- you have not

off-loaded this much fuel in such a short period of time before; is that correct?

MR. MAGGI: We just off-loaded -- in 20 months, we just off-loaded 30 systems at Duane Arnold. And -- and, again, it did not --

MR. SEVERANCE: Is this one more ambitious or less ambitious than that?

MR. MAGGI: It's -- it's the same approach, right? So, it -- it's only the change in technology that allows us -- when I say we are more efficient, it only means that we can start earlier, right? That the technology advance allows us to start earlier. It doesn't allow us to go faster. It doesn't allow us to change anything about the loading process. It only allows us to start earlier in the -- the temperature of the fuel is limited by the NRC anyway.

MR. SEVERANCE: So what is the risk of leaving it in the pool three-and-a-half years? Why would -- why would it be a higher-risk scenario to leave it in the pool for three and a half years, instead of two and a half years? Explain that to me.

MR. MAGGI: Yeah. So I will -- I'll let PG&E answer that in terms of their evaluation of risk. We do know that putting fuel into dry storage on a pad is a safer place for it than to leave it in the pools.

MR. SEVERANCE: Is that because of concerns about an aerial attack? What is -- what are the outside risks of it

being --

MR. MAGGI: There is a lot that goes into that, but I will let PG&E answer why they chose the schedules.

MR. SEVERANCE: Thank you.

MR. ANDERS: Excuse me. This is Chuck Anders. Scott Lathrup is one of the panel members. He's got his hand up right now.

I also want to point out that we're, basically, at the time -- end of the time for this presentation segment. And so we do have a 20-minute discussion period after this. So I think it's important to address the questions, but, yet, at the same time, allow Orano to finish their presentations so we can have that discussion period afterward.

MR. LATHRUP: Chuck, I will be more than willing to delay my question until later. I'll be more than happy to delay my question until later.

MR. ANDERS: Okay. Thank you, Scott.

MR. LATHRUP: Uh-huh. Okay.

MR. NARAYANAN: Just the one topic of the heat load is -- is that, at least come up on licensees, who is loading systems at 30 kilowatts. As soon as they knew that this was available and they purchase the system, they actually loaded 45, 46 kilowatts. So we have licensee that upload at higher heat load fuel (inaudible) PG&E will be loading. So, I mean, obviously, there seems to be an advantage. I think it's an oppositional advantage for the plants to preserve their core

fuel that they would really like discharge, take their hotter fuel and pool it into the dry storage. And that seems to -- that's what has been happening, at least for us.

So, yeah. I also tried -- tried to show you something with respect to how heat is conveyed into the module and, you know. And so, as you can see, this one shows the half model of the canister in the HSM. And the color that you see, in red, is actually -- all of that lines are all represent the velocities of the airflow. You see the red, which means there's a large amount of air coming in through the inlet, which is at the front, and then it goes in about halfway, and then makes a turn -- you know, a 90-degree turn into the passage. And that's where you see the yellow and the green. So that it's likely slowing down. But the key is that, in -- they actually have an angle there they distribute and goes all around the DSC.

And the DSC. Is loaded in such a way that the PWR fuel and the BWR fuel, the heat generation of the fuel is more centered. So at the center, actually, you'll have a higher heat compared to the ends of the canister, and that's where you see the flow lines, here. You can see the higher velocity is actually around the mid-portion of the canister and the lower velocity is around the outer end of the canister. That explains, to me, that, you know, flow is actually optimized and it's actually cooling the center portion more, so that you have a very good direction of the temperature.

And then, of course, as we see the up and you see the same thing, the air is actually going up and then making a 90-degree turn again, and going back into the -- in the space between the modules, into the outlet vent. And again, the outlet vent is very small. Even though you see a big structure, that big structure is for shielding. The outlet vent is only 4-inches wide. And again, you see very high air velocity, it goes out, and then comes on both sides of the -- what you call the vent cap, because the vent cap, clearly, is a shielding, both protecting angles, providing shielding. So it does provide for the highest amount of heat transfer in any system.

I think we have the -- it was. Oh, okay -- it's right on the left one.

So I think the last slide for me is talking about, you know, what are the possible of accidents, what kind of -- what kind of blockage -- I mean, what they assume are accidents.

One of the things we have to do when we do these safety analysis is to populate an accident. One of the accidents is actually a complete blockage of the inlet and outlet vents, which is very, very difficult under any circumstances. And when we do that, we actually calculate the temperature increase over a 40-hour duration. And what we've shown that on 40 hours, the temperature is still above -- for the accident, still much below about 200 to 250 degrees below the limits of Farenheit below the temperature limits for

accidents. But we do have a lot of margins and the blockage is assumed to be a 40-hour duration.

And then, to provide the margin, the requirement is to inspect, visually, and remove any blockage, if there is any, every 24 hours. So that's what the licensees have to do to mitigate the impact. We do have a lot of margin built in because the accident duration is 40 hours, while the corrective action, if any, is a 24-hour period.

And our licensees have done multiple methods. One is, they can actually go around walking once a day and look for blockage, or they can measure the temperatures. There's corrosions in the concrete itself to measure that temperature and correlate it to what's happening. And then, of course, now I've seen our licensees actually having camera systems that look at the vents and they actually have a continuous feed of what's happening.

So, again, typical accident conditions that we -- that we have also looked at, but not -- not, you know, used as a design basis. It's partial blockage, and that's what may happen during landslides or what we call a smart flood, where just the inlets that are covered.

Again, because of the whole alarm system and the large alleyway that you see for inlets, you know, a simple method can be used to repair debris, like hosing. But the outer vent is still available -- you have a partial blockage for the seven considerations, the outlet vent is sufficient to

maintain the cooling that's needed. And especially, the partial blockage is due to flooding and the water actually -- the steaming of the water actually provides for a much better heat transfer. So in many cases populated, vents of higher temperature or temperature increase, the system, actually, is capable of maintaining the safety.

With that, I don't know what the --

MR. MAGGI: Yeah. Yeah, the other one.

There were 50 systems installed at SONGS. This is a back-to-back array, similar to what will be installed at Diablo Canyon. And these -- these HSMs are tied together with the seismic rods, same as will be done at Diablo Canyon.

Are these the -- the ones up top? Right here? Yeah, okay.

All right. So you can actually see this is a good profile view. You can see how thick that roof is.

So this is actually a video about the aging manager, the inspection that was done at SONGS. They produced this video, we'll -- we'll provide a link for it. You'll be able to view that and get their -- their commentary along the way. But you will be able to see some features that we've talked about more clearly in the video as we progress through here. So that's the -- the vent with a bird screen over it, for obvious reasons: There would be a nice, warm place in there for wildlife if you didn't put the screens on it.

That's Alan Williams from SONGS, discussing just why they

chose the -- the canisters they chose to inspect, which were the oldest and coldest canisters on the pad. They are most susceptible to the potential for any kind of corrosion because of the ability to condensate water out of the air to potentially mix with salts.

So in order to do inspections, we send three separate robots into that vent. I believe that's what they're talking about now. So they have a delivery system, which is, you know, the -- the bigger piece of this. And then the actual inspection and crawler is this little robot here that is actually set onto the side of the canister. And that is the suction crawler with dust on it from the actual inspection. Multiple V.P. one-level cameras. This is actually the surface of it -- the canister being inspected. And this is like the dust you would have on top of your dresser. It just looks so much bigger under the magnification of these camera systems. And so, obviously, would be much better with their narration.

I want to see if there is one more view going under the can here. I think we'll just stop this one.

Any questions about the -- the process of the aging manager piece?

UNIDENTIFIED SPEAKER: Is it only cameras, or do you have other types of sensors on that?

MR. MAGGI: Yes. And -- oops. Oh, I'll leave.

So as -- as I presented last time, we do have the capability to fully inspect our canisters with volumetric

current UT, enhanced visuals, and we have the ability to do the cold-spray patch for mitigating corrosion.

In the event that you found very severe corrosion, which, of course, to date, we have not found any corrosion on our canister systems. So -- but we do have the system ready. It was ready for the SONGS' work, just in case, because it is a marine environment. So that was basically a requirement by the site or a commitment by the site for the Coastal Commission to have that ready. And so that was deployed -- deployable if it would have been needed.

But we'll get you the link to this video. It's -- it's worth watching.

All right. So I think we're just about there. Yeah, we're there.

Again, you know, we have performed four of these off-loads. No safety issues, no regulatory issues, on budget. On schedule, under dose. And I will point out that this -- this is no riskier than any normal loading campaign that we perform, whether it's like the Saint Lucie Campaign we just finished last week, where we loaded 12 systems, you know, or doing Arnold, 30 systems or, you know, here, where we'll load 69 systems with fuel. The risk -- risk does not change in the off-load versus a standard campaign, which we perform six or eight times a year, every year, and we have not had any -- any incidents. And there are about 1,200 of these systems currently loaded in the U.S.

So that -- I think that's the end of our remarks. Thank you.

MR. ANDERS: Great. Thank you very much. Let's take a few minutes for questions.

Scott, you had your hand up earlier. You want to ask the first question?

MR. LATHRUP: Yes. My question is going to relate to the pending licensing of the amendments, I guess, that are going to be taking place.

If you go back to slide number 7, where it has a cross-section or a cut-out of a canister. I thought I heard you say that the basket itself has to have some kind of a modification.

And then if you go to, also, another slide that -- if you look at slide number 7, I -- I thought I heard you say that the actual basket needs to have a modification done to it, as far as part of the pending license.

MR. NARAYANAN: Yeah. Yeah. Let me clarify that. I think what -- what I said was, the basket aluminum plate will BE anodized. So that'S a specification, and we have done that in the past and we've actually analyzed our poison before. So there is going to be no change. It's just a specification of the material. It will be anodized aluminum.

MR. LATHRUP: Okay. So basically, then, there doesn't need to be any modifications of the cask then?

MR. NARAYANAN: No. No. Yeah. They just procure the

aluminum -- the anodized aluminum.

MR. LATHRUP: All right. That's -- that's fine. And then if you slide on to another one, where it talks about the EOS. Again, part of the, I want to say approval, this unit is not going to have any modifications done to it specifically towards Diablo Canyon?

MR. NARAYANAN: Yeah, that is correct. The -- the system, you know, when -- when I say these amendments, they -- you know, we call them content amendments. That means we just -- we just change the characteristics of fuel that will be loaded and not the design of the system.

MR. LATHRUP: Okay. And then, also, I -- I -- as far as Amendment Number 3, you're talking about the loading of that canister. The new layout of that loading is something that the NRC has to approve for Diablo; is that correct?

MR. NARAYANAN: That is correct. So for Amendment 4, we will -- we will come up with one or two loading patterns, which --

MR. LATHRUP: Uh-huh.

MR. NARAYANAN: -- which will be subject to NRC approval. And the goal, again, is to be so clever that, in the future, there is no need for additional, that we've actually found the two perfect ones. That's what we think we did it for the BWR and we hope that we can do that for the PWR, as well.

MR. LATHRUP: And that -- and then for the transfer of the cask up to the new (inaudible), does that transfer process

have to be approved by the NRC based on the -- the higher level?

MR. NARAYANAN: No. So the -- the transfer and the horizontal -- all of the designs and the operations are bounded by the 50 kilowatt heat load that was approved by the Amendment Zero. So there should be no changes to any of the -- any of the parameters.

MR. LATHRUP: Then, just for clarification for everyone, as far as the risk, I'm going to say loading -- I mean, doing the loading two years versus four, are you saying that it doesn't matter what the heat load is, the risk is the same? Is that what you are trying to say?

MR. NARAYANAN: So if you have an index of comparison being that it is safe, and it is safe with the margin, anything that's, you know, below, that's not considered a risk. It's just considered okay, am I -- am I, you know, 100 degrees below the margin, or am I 50 degrees below the limit? But what -- your limit is already safe. So it's -- it's the dry-storage systems in general. NRC has published several studies, and one of them was a few years ago, that they -- they actually had a risk significance to it and it's considered to be very, very, very low-risk --

MR. LATHRUP: I understand that you're talking about a range. But again, I think, for just the layperson, you know, when you talk about numbers being very high, and then after two years, they drop off a lot, it just seems like they're

going to be at a higher risk to move a -- a hotter fuel. It just seems like the normal. So, what I think you're saying is that you're really dealing with a range, and within that range, your process is, there is no risk difference, I think is what you are saying.

MR. NARAYANAN: That is correct.

MR. LATHRUP: Thank you.

MR. ANDERS: Great. Thank you, Scott.

We have David and then Mariam.

MR. BALDWIN: Okay. Are the modules constructed on site? I heard you say the canisters are constructed at your facility in North Carolina, I believe.

MR. MAGGI: Yeah. So currently, the plan is that the modules will be constructed on -- on site, here.

MR. BALDWIN: Okay. And how long is that process from start to finish, from when they begin construction? Are they -- are they brought in or are they poured?

MR. MAGGI: No. It's -- they're poured.

MR. BALDWIN: Okay.

MR. MAGGI: So we'll have forms here. We'll have the rebar, obviously, delivered, and then we'll work with local contractors on the -- the concrete specs. We've already talked to several who are able to give us the specific concrete that we need. It will be about a year to build those from start to finish.

MR. BALDWIN: Okay. One of the reasons I ask that, is

because the panel determined in its outreach that -- and actually memorialized in its vision document, the importance of a local hire and that's done through project-labor agreements.

Have you guys worked under project-labor agreements in other areas?

MR. MAGGI: We absolutely have, yeah.

MR. BALDWIN: Okay. And you intend to work on one here -- under one here?

MR. MAGGI: I'm not sure that the plan here, if it's going to be union labor or not. We have to -- we have to, obviously, meet the California requirements for prevailing wage, but I don't know that we established an agreement yet with any suppliers.

MR. BALDWIN: So, do you intend to enter into negotiations with the building trades for a local hire agreement?

MR. MAGGI: I believe that is the plan.

MR. BALDWIN: Okay. I would encourage you to do that. I don't know that you're mandated under prevailing wage, necessarily. But -- or I don't know, maybe you are. Certainly. But, yeah. I would certainly encourage that. And it's also the wishes of this panel that that be done - to ensure the local hire.

MR. MAGGI: Understood.

MR. BALDWIN: So you mentioned the timeline of

construction. What about, how many - how many craft do you think it would take to construct the new facility?

MR. MAGGI: I will get back to you with that.

MR. BALDWIN: Okay.

MR. MAGGI: We have low boards -- we have low boards that went into all the pricing and -- and the assumptions, I just don't have that and I don't want to be inaccurate in my --

MR. BALDWIN: Okay.

MR. MAGGI: -- reply.

MR. BALDWIN: And then, could you just, really briefly -- mainly for the folks at home, I think. But there was a lot of information here. But could you just provide, in a very short summary, in laymen's terms, what happens with the new system? What's happen -- what happens in the interim between the existing system, HOLTEC system, I think, and then -- and then as we move into your system, and how are the casks loaded or off-loaded, is there a -- is there a break in that time, and when will that start again, and what should the public expect on the loading campaigns from now until, I guess, it would be like '26 or '27 before you would actually start loading into the new system; is that right?

MR. MAGGI: Yeah, right. Right now, there would be no plan. If -- if decommissioning goes forward as planed, there's no need to off-load anymore fuel with the current system.

MR. BALDWIN: Okay.

MR. MAGGI: All right. So, the next -- next off-load would start on our system.

MR. BALDWIN: Okay. Thank you.

MR. ANDERS: Thank you, David.

Miriam. And then Scott, again, has another question.

MS. SHAH: Okay. I just -- thank you for the explanations. I just had a couple questions. These are things that people bring to me in the public. So I really appreciated your explanation on seismic activity, because I know a lot of people worry about that with earthquakes. And so I just wanted to make sure I'm explaining it to people right in -- in laymen's terms, that -- so, these are laid on their side, which is less risk, and, also, they could move a bit with seismic activity.

What Richter scale are you prepared for? Like, Fukushima was a 9.0. I mean, what -- how do you feel?

MR. NARAYANAN: No. I don't know what the Richter scale, but we're looking at the site-specific max of 0.85 G. And just to show that our systems that we deployed at SONGS are 1.25, 1.5 G. So, it's -- it's a significant -- it's lower than -- much lower than -- and I can try to get a Richter scale conversion. That's --

MS. SHAH: It would just be good to know because I know that's what so many people worry about.

MR. NARAYANAN: Sure.

MR. MAGGI: I'm not sure it's convertible. (Inaudible)

about ground acceleration, you can have a 9.0. But where did it happen and what's the actual --

MR. NARAYANAN: Epicenter.

MR. MAGGI: Yeah. What's the epicenter? What is the ground doing?

MR. NARAYANAN: Right.

MR. MAGGI: And that's what we have to analyze, is what the ground does.

MS. SHAH: Okay. Just --

MR. NARAYANAN: We can still figure it out. You know, I can't promise I can give you --

MS. SHAH: Yeah, I know. I see what you are saying, because whether it's centered in (inaudible) or it's centered in L.A., it's just something people do worry about here.

The other thing -- I appreciated the explanation on the half life. Because one thing that people say to me is, oh, sure, you know, everyone's going to be really careful and really concerned the first 20 years, but then, like, what about 100 years from now? So, what you're saying is, you know, within 20 years it's already cooled halfway. What does it look like in 100 years?

MR. MAGGI: No. Not a lot -- not much different.

MR. NARAYANAN: Yeah. There are certain (inaudible) that have -- that, you know, hang on for a while. But when you -- compared to when you discharge, it's a fraction.

MS. SHAH: Okay.

MR. NARAYANAN: And 20 years is a reasonable number. So 100 years is five times.

MS. SHAH: Uh-huh.

MR. MAGGI: But it's still pretty long.

MR. NARAYANAN: Yeah. Yeah. It's -- yeah. Yeah.

MS. SHAH: Yeah. I was hoping you would say nothing. So, that's why I was asking.

MR. NARAYANAN: You can still not touch it.

MS. SHAH: Right. You see, that's the type of things people ask me. It's not touchable in 100 years. Okay. Good.

All right. Thank you. That was all I had.

MR. ANDERS: Thank you, Miriam.

Scott? Last question from Scott before we take a short break.

MR. LATHRUP: This is just a quick follow-up to Dave's question. You're -- you were saying that, essentially, the E.O.S. facility will be built on site. I was just curious about the concrete. Will you be setting up a batch plant on site or would that be, like, trucked in from somewhere?

MR. MAGGI: Again -- again, current plan that we were looking at was trucking in, which is typically what we do. But batch plant would be very convenient, but I'm not sure that there is space up here in the (inaudible) for that, but we have been very successful with, you know, trucking in the concrete as we need it.

MR. LATHRUP: Thank you.

MR. ANDERS: Thanks, Scott.

Kara, you had one last quick question.

MS. WOODRUFF: Yeah. First, I wanted to just echo what David said. The panel prepared a strategic vision and there are many places in that document that really urge the use of local labor, and that's just something that's been very important to this panel.

But my question is, when you're contemplating the transfer of the fuel into the SSC, and you say there's no real change of risk, whether it's done at year two or year four, is there no difference in the radiation exposure to the workers? Isn't it greater earlier on or is that not the case?

MR. NARAYANAN: So even with the 50 Kilowatts, I would still say it's an extra five to ten less than other systems. So we actually -- we don't have a problem with -- yes, the dose rates, typically, the dose rates are higher -- first ones are higher. But we actually have much, much better shielding.

So loading operations, I think, especially between that 46 kilowatts, we still saw typical dose rates compared to the 32 kilowatt systems that have loading before. So, really, the function of all in the sense, that, yes, they will be, but the system is designed and licensed for higher dosage.

MS. WOODRUFF: Okay. And then --

MR. NARAYANAN: And to provide further protection. Sorry.

MS. WOODRUFF: Okay. That's helpful. Thank you.

And then the question I asked last time, which I still don't understand is --

MR. NARAYANAN: Sure.

MS. WOODRUFF: -- in everything you designed, there's this margin of safety. But let's say a worst-case scenario takes place -- flooding, landslide, whatever it is -- what happens if the specifications are exceeded? Like, what physically happens when the worst-case scenario takes place?

MR. NARAYANAN: Let me try to answer that. Okay. If you're thinking that there's a possibility of a chain reaction leading to uncontrolled increase in temperature or whatever, that's not going to happen. So, when the system is dry, the chain reaction is not going to happen. So that's number one. So there is not going to be a walk away or uncontrolled increase in heat.

And as I explained, we already evaluated for a complete blockage of both inlet and outlet vents. That's a very, very highly unlikely event. The most that can happen is a partial blockage, and that partial blockage, I think we have significant margin to the limits. And by limits, I mean -- there are a few limits we can think of, one is the fuel temperature limit, which is, as we have seen, is 400 degrees C in the normal conditions. It's 570 degrees C for abnormal or off-normal conditions. And abnormal conditions can extend to several days. And we are about at least 100 or 200 degrees below the 570 degrees margin. So, you know, abnormal

conditions. We have a significant margin of particular watts.

The next limit that comes into it is actually the concrete temperature limits and for that, also, we have significant margin. We actually have acquired to perform testing of the concrete at elevated temperatures to show that it's still remains the strength, and it does, and we actually have significant margins, 10 percent margin that we have to consider as part of the code for that concrete mix design. So, there's already margin in the concrete. So the concrete temperatures are not going to exceed.

So, in all likelihood, once everything is clear, the system should be as good as it was to continue to operate, in case something happens. But...

MS. WOODRUFF: I have just one tiny follow-up to that.

MR. NARAYANAN: Sure.

MS. WOODRUFF: Okay. You said you don't have to consider a total blockage.

MR. NARAYANAN: No, we don't have to consider it. That's our -- design base is accident -- is total blockage.

MS. WOODRUFF: Okay. So have you analyzed what happens with a total blockage?

MR. NARAYANAN: Yeah. A total blockage is the fuel core temperature, and I am going to talk in time here, because that 40 -- it could have been the same at 40 -- 40 hours, and the limit is 1058, so we actually have 250 degrees calculated margin at 40 hours.

MS. WOODRUFF: What about at 100 hours?

MR. NARAYANAN: The requirement is -- the requirement is to clear the blockage in 24 hours.

MS. WOODRUFF: But what if you can't?

MR. NARAYANAN: So the one way is to provide external cooling. That's one. If any change in -- you know, any change in cooling, like there is no water, will reduce the temperature. But when the temperature increases -- that's what I was saying: The worse that can happen is no increase in the -- the fuel itself doesn't become bad. There may be some change in the fuel planning, but that doesn't change the characteristics of the system. The system is still protected in the sense that the shielding is maintained, health and safety of the public is maintained. The fuel may experience an increase in temperature, maybe there is some sort of a failure, but that doesn't -- the function that has to be maintained is the confinement function. The canisters have a significant margin for -- for maintaining that particular function, which is, we operate it -- I mean, the canister has to lose its integrity. And a common expression is not going to make it lose its integrity.

UNIDENTIFIED SPEAKER: So would it be accurate to say that the worst that can happen is you may have a problem shipping that fuel in the future?

MR. NARAYANAN: You could. But yeah, the fuel --

UNIDENTIFIED SPEAKER: The canister itself.

MR. NARAYANAN: The canister, yeah. So, the -- so, that's the main licensing basis under action conditions, the canister maintains its integrity. And therefore, radioactive material will stay confined within that canister and shielding is maintained.

MR. BALDWIN: Okay. I believe you said that total blockage was based on only the inlet and not on the outlet; is that correct?

MR. NARAYANAN: So the blockage that I will consider complete blockage, 100 percent blockage. What I'm saying is that under normal circumstances, if you say an accident were to happen, natural phenomenon or any other -- any shaping events are not likely to cause simultaneous blockage of inlets and the outlets.

This is the legacy that we've implied since, you know, we started dry storage 30 years ago, in our latest system, the Matrix, we only have inlet blockage. And we actually say that we are doing it outlet, but we said it's not credible. So, really, a complete blockage is not credible. However, we analyzed it and that's what we're protecting against -- for.

MR. ANDERS: All right. We -- we need to really move on. We need to be respectful of the members of the public who are waiting to make public comment, and we are running way, substantially behind time. So, we can take up this conversation again if we have any time left in the meeting. Okay?

So let's take a -- we have scheduled ten-minute breaks. So let's take a five-minute break and be back at 8:55. And at that time, we'll have public comment. We'll open it up to both people that are in the room and on Zoom.

If you are in the room and want to make public comment, please fill out a blue card and give it to one of the folks here. And those people on Zoom, please raise your hand so we know how many people want to speak.

So we'll reconvene at 8:55.

(A break was taken.)

MR. ANDERS: Okay. It looks like we have two people here to speak in person and four people on the -- on the Zoom meeting. So, I want to turn it over to Miriam Shah to open up the public comment section.

MS. SHAH: Thank you, Chuck. Yeah. We're just going to open up the public comment that was just on our last presentation, Item 8, the cask system. So, yeah. And we're going to give everyone three minutes. We don't have that many people. So -- and if you are asking a question, I'm going to do my best to write that question down, and we'll do all the questions either after your comment or at the end, so you don't use up your three minutes waiting for an answer to your question.

So, yeah, Chuck. Go ahead, whenever you are a ready.

MR. ANDERS: Thank you.

Our first speaker is supervisor Dawn Ortiz-Legg with

Okay. So I had the old card. So -- and Sheri Danoff had a question, but it was for Dr. Budnitz, so she is going to ask that after the meeting with Dr. Budnitz.

So we can go directly to the online Zoom participants who have three minutes each for discussion. And our first speaker is Jill Zamak -- Jill. And followed by Marty Brown, Eric Greening, and Ace Hoffman.

MS. ZAMAK: Hi, this is Jill Zamack. I live in Arroyo Grande. I have two questions. One is about the potential for concrete degradation on the pad. I understand that the rings will be removed on the existing pad and the steel posts, which go to the depths of 7 feet, will remain. The concrete will be sealed in, grouted was the term used, and leveled.

Is there concern about concrete degradation as a result?

And two, in April, I (zoom interruption) and tonight, I heard through Mr. Lanthrup that no modifications are needed. Which is it? Thank you.

MR. ANDERS: Okay. Thank you. Miriam, did you want to comment?

MS. SHAH: Oh, no. I was just saying, I got Jill's questions down. Would we like to just -- I can keep a running tally and we can do questions at the end; is that okay? All right.

MR. ANDERS: Thank you. Thank you, Jill.

The next speaker is Marty Brown.

Marty, state your name, your residence, and any

affiliation, please.

MS. BROWN: Yes. I am Marty Brown and I live in Atascadero. And some of my questions and concerns have been answered tonight. Orano's safety record is impressive. The horizontal positioning of the new seems safer, and local suppliers and labor would be used.

And my question about how many years are the new designed to be safe -- safe or repository, and the answer was 100-plus years. One of my concerns would be CIS, the necessities, supposedly, of transferring the high-level nuclear waste to another area. And it seems that that would negate the need to transfer waste to a CIS site, because a permanent depository will probably be found and designated by that time.

One thing that I was questioning is radiation monitoring. How would that be done?

And that was my questions. Thank you.

MR. ANDERS: Thank you.

Our next speaker is Eric Greening. Eric?

MR. GREENING: Hello. Can you hear me?

MR. ANDERS: Yes, we can. Go ahead, Eric.

MR. GREENING: Thank you.

I'm Eric Greening. And first, I -- I share both Marty Brown's observations and her question of, relative to the timing of removing the elements from the pool, I think the reason to do it sooner, rather than later, to the extent it can be done safely, is because the potential for catastrophic

emptying of the water from the pool. And what would result from that is much more massive in terms of potential harm and spread of harm and distance than something happening once it is in the solid canisters and in the storage that's been explained by Orano.

My big question now -- thank you for the answer. I think it was Tom Jones that answered the question relative to the county process in the event that they went for a license extension.

My other question relative to process is, if they went for a license extension, which I am not recommending -- it open all sorts of cans of worms -- what would happen to the NRC process relative to the canister?

It's obvious that the current plan is to allow the fuel elements to continue to be loaded and function until the end of the license and then begin to unload them. And any license extension would mean some huge changes in all of that.

Would the present NRC process be halted and restarted? Would it somehow be modified in the process of continuing? What would happen to the NRC process relative to the high-level waste handling in the event that PG&E tried to secure a license extension?

Thank you very much. And it's been a very informative evening.

MR. ANDERS: Thank you, Eric.

We will address questions after all the speakers have

spoke -- have had an opportunity to speak.

We have, I guess, two more. We just had another hand raise. Our next speaker is Ace Hoffman, followed by Thomas Marre.

MR. HOFFMAN: Sorry, I didn't realize -- I -- can you hear me?

MR. ANDERS: Yes, we can. Go ahead, please.

MR. HOFFMAN: Thank you. I realize it's late, so I will try to be quick.

(Inaudible) started with horizontal casks and then went to vertical. You started with vertical casks and they're going to horizontal. Somebody's got to be wrong. I -- I don't understand why there's the difference and why you're disagreeing with Sam and Oakley's consideration after they've spent years trying to decide what to do.

Also, regarding the safety of waiting to fill the canisters. And there's -- a lot of people have been pointing out how much more radioactive the fuel is at the beginning. That's a pretty strong argument for keeping the -- for shutting the plant down, and then four years from after it's shut down, it -- everything is a lot safer than it was when it was operating. So I think a lot of that discussion lends itself to the idea that, let's go ahead and shut the plant down. Much more massive radiation problems, that phrase was just used, and I think that applies especially when operating reactor.

And lastly, my last point is, I don't think that the -- the casks you're designing are protected against a large airplane strike. I don't think that's possible to do. And so I'd like you to address that issue with airplane strikes, typically of very large airplanes.

And thank you very much. This has actually been very wonderful to listen to.

Actually, I am calling from Carlsbad. I live near Salmon Oaks. Thank you.

MR. ANDERS: Thank you, Ace.

Our last speaker is Thomas Marre.

MR. MARRE: Yes. Can you hear me? Hello?

MR. ANDERS: Yes, we can. Go ahead, Tom -- Thomas.

MR. MARRE: Great. I want to build on what Marty Brown alluded to in terms of monitoring of radioactive waste (inaudible) good old-fashion Geiger counter. You have some vents, some intake events which are just, you know, fine. But then you have some outflow events.

What is your radioactivity of the air coming out of there in those outflow events? That's the question.

MR. ANDERS: Okay. Thank you very much. We will have a discussion at this point. Are you -- are you -- oops. I think I just cut him off.

Thomas, I just wanted to verify that you were done with your comments and we'll address the questions that you asked now. Okay? Thank you.

Miriam?

MS. SHAH: Okay. I'll go through -- all right. Thank you, Thomas.

I was capturing the questions as we went. If I missed something, please, if someone else was writing, feel free to jump in.

First, I will go to Jill Zamak's question. Her first question was just concern about degradation of concrete on the pad. Is -- is -- does anyone else share her certain or why should they not?

MR. MAGGI: So the process that we're using to remove those rings and then graft the exposed carbon steel that's left is the same process used in the operating plant when they have similar conditions. It's an approved process through, you know, ACI, American Concrete Institute, so we're not worried about that causing -- just because you remove that ring, if you do the proper repairs, it's as good as new. So, we're not worried about that. And the aging management program, which requires inspection of that pad on a five- or ten-year basis, would catch any issues and allow you to do further repairs as the concrete ages, if that's necessary.

MS. SHAH: Okay. And then, she remembers hearing at a different meeting that there wouldn't be modifications to the canisters. Now, there might be. So she was just wanting clarification on modifications to the canisters needed or not.

MR. MAGGI: No. So there are no modifications to the

canister. There will be a change to a single material specification on the aluminum plate. We will ask for it as anodized aluminum versus un-anodized aluminum, but that's not a design change.

MS. SHAH: Okay. And then Marty Brown was concerned with CIS transferring.

Is there a need to transfer?

MR. MAGGI: I cannot answer that. If a facility is available. We intend to have a facility available as Orano, in West Texas. In order to -- to make full use of the site, you would want to get the fuel out of here as early as possible.

MS. SHAH: And then a couple people asked about -- Marty and Thomas both asked about radiation monitoring, how that would be done. Really, specifically, Thomas was asking about radioactivity of air from the outflow vents.

MR. MAGGI: Yeah, so -- yeah. Go ahead. Bob will be glad to give you that one.

MR. PAVLIK: Hi, good evening.

So for the radiation monitoring that will be occurring at the site, so while we are storing this fuel, we already -- our current practice is there are decimeters around the perimeter of the SSC, we do monitor the radiation in the areas and those are -- the information is collected quarterly and sent in annually to the Nuclear Regulatory Commission.

For what we described in the past, is that within this

nuclear decommissioning cost estimate, we did incorporate the cost for incorporating a real-time monitoring system, similar to the one that's -- that's installed then (inaudible) so that would be a real -- a real-time monitoring capability for the perimeter of SSC, not specific to the canisters that that will allow us to do that monitoring, regardless of the system.

Specifically, on the question of what's the radiation dosage of the air coming out of the vent, the air is not radioactive. So while you are measuring its radioactivity of the contents of the fuel, there is not -- no particular -- it is a dose measurement of the fuel itself. So there is no release. There is no air contamination. It is a fuel system. It is built from the fuel bed. It's completely contained.

MS. SHAH: All right. Thank you.

And, I think, moving to Eric Greening's question, it was about process. If PG&E did go for a license extension, what would happen to the NRC process relative to the canisters, would the process stop? Would it be modified?

UNIDENTIFIED SPEAKER: There would be no change to the licensing process to the storage system.

MS. SHAH: Okay. Thank you.

And then just jumping to Ace's couple of questions. I mean, you talked about the benefits of the horizontal model. Is there anything you kind of want to -- I don't know how you would talk about what another plant did. But they went vertical, you went horizontal? Is there anything that you

want to talk about with that?

UNIDENTIFIED SPEAKER: So the reasons for making the switch one way or another vary, obviously, with the utilities' needs. So I can't speak to SONGS.

MS. SHAH: Okay. And then, just, if you wanted to address, briefly, the safety in place if there is an airplane strike.

MR. NARAYANAN: So Orano systems are analyzed for aircraft crash. Our systems are evaluated for aircraft crash, and other, you know, items, such as accidents, and there's no impact.

MS. SHAH: Okay.

MR. NARAYANAN: But that information is actually a safeguard information. NRC themselves have conducted several studies and do have -- in Europe, it's required. We do have studies that indicate that the systems are robust.

MS. SHAH: Okay. Thank you. Those were all the questions I had memorialized.

MS. ZAWALICK: Yeah. I was just going to add on to that last question on switching systems. And we went over this in the April public meeting. And then, Tom, you touched on it again today on why -- or that wasn't successful bidder and so forth. Technology has changed, and they advance, and they have been advancing, as we have been talking about.

Correct me if I'm wrong, team -- but I think it's 17 current stations across the United States have different

systems on their sites. And so, I mean, you just evaluating what the needs are, and so forth, and what your planning is, and what has lead to that. And as you mentioned, there has been multiple different systems and we have selected Orano for all the reasons Tom went over today and April 20th.

Okay. Thank you.

MR. ANDERS: All right. Thank you.

It looks like we have about ten minutes to continue the discussion we had before. And Michael, you had a question. And Bruce, you had a -- I interrupted your question.

So, go ahead, Michael.

MR. LUCAS: Yeah, thanks.

This is fascinating to me. One of the things that you showed in the cross-section of the casks was the -- you called them rails on the inside. You didn't talk about what they are made of. Are they another metal or are they --

MR. NARAYANAN: So the rails are made of steel, and they also have a -- what we call a metronic. It's a very hard steel and metronic is on the steel. Metronic is specifically used to prevent growing of the canister and provides for a very small transition.

MR. LUCAS: They -- they also -- since you've got the aluminum, and then this steel, and the outer steel, what -- what keeps the differential metals issues? Is it just these coatings on the different steel?

MR. NARAYANAN: So it's inside. It's in the alignment so

there is no corrosion. The only thing we'd have to look for is differential thermal expansion. So the way we, again, cut these splits and install them, the lengths of those plates are adjusted for that -- you know, when they are hot, they are all at the same length and not inferring with each other.

MR. LUCAS: Okay. Another one, here: The one thing I noticed between the (inaudible) model and this one is the vents were different. You have gone through a kind of corner vent, as opposed to the continuous vent underneath the cask. What -- is that -- is that fair to say?

MR. NARAYANAN: Yeah. So San modules for what we call at that time the advanced horizontal storage modules, the HSMs and they were designed for unit one, and it was shut down it was 24 Kilowatts. So, since then, of course, it has a front inlet vent and a high airflow. Since then, we designed the module, that's why, I think, which vent for the 32 Kilowatts, and 40 Kilowatt systems, and then EOS is 50. So module has about (inaudible) to accommodate better airflow.

MR. LUCAS: The other thing I think you mentioned was, the vents were continuous through the base. But in the -- in the slides you showed about a potential landslide, it looked like you said there were no vents in the back. So in that version, do they branch out into teams, instead of going all the way through the base?

MR. NARAYANAN: So the -- if you look at the picture of the tunnel, you know, of course, there's a wall that -- at the

end on both sides of the array. Otherwise, the vents go through, all around.

MR. LUCAS: So, they never go all the way through the double -- the back-to-back array? They all hit a wall at the --

MR. NARAYANAN: That's correct, yeah. So, the vents -- the only opening is in the front.

MR. LUCAS: Okay.

MR. NARAYANAN: And then, at the very end, it's protected by the walls.

MR. LUCAS: Okay. All right. Thanks. Thanks, again.

I guess -- and you mentioned in the presentation that the concrete is the kind that has the higher strength or has the retained strength with the higher exposure to, well, the heat. And that -- that continues through the life of the -- of the cask that you've got?

MR. NARAYANAN: Yeah. I mean, what -- so, ACI, the code requires us to actually test the concrete. And what we -- what we found is, when we do the testing, the 28-day test, the strength of the concrete is actually 10, 20 percent higher and it actually increases.

MR. LUCAS: All of these that you are casting on the site, you're retaining samples of all of those to verify the quality of the --

MR. NARAYANAN: We are required to do that, yes. Absolutely.

MR. LUCAS: Okay. Thank you.

MR. ANDERS: Thank you, Michael.

Bruce, did you have any follow-up for your previous question?

MR. SEVERANCE: I want to say I really appreciate it, thank you. The -- some of the thorough answers that you have given. And I see, clearly, that the failure modes associated with the dry-storage cask is much lower than leaving the material in full, so I am starting to understand that better.

The question I had was, you made the comment that the material cannot be touched in 100 years. How long do we have to wait until we can touch the material?

MR. NARAYANAN: Oh.

MR. SEVERANCE: How long, to be safe?

MR. NARAYANAN: So people say that the material is radioactive. I mean, the assembly is -- is megawatts, 10 to 6 watts, and kilowatts can kill people. So, that's what we are looking at. And after 100 years, the radiation, those rates will still come to a level. So, with that, a touch is still going to be lethal. There may be at a stage where -- you know, and people say it's -- you know, it's actually very, very severe on the canister, regardless. It's not something that can be taken easily.

Temperatures, I believe, will be in the range of about 125 to 130 degrees, so I'm still saying it's hot to the touch. About 200 years, might be -- temperatures may be cool enough.

But, obviously, what you've seen at SONGS and -- just as well, around 4 Kilowatts to 6 Kilowatts, it is still more than 125 degrees on the surface of the canister.

MR. SEVERANCE: But the radioactivity of the contents.

MR. NARAYANAN: Is high.

MR. SEVERANCE: For how many hundreds of thousands of years?

MR. NARAYNAN: About a thousand years, I'd say.

MR. SEVERANCE: About a thousand years?

MR. JONES: And we gave a written response to that, which is from the NRC website. So you should see that very soon.

Well -- so, what would -- we gave our draft answers and they're reviewing our responses to ensure that, you know, they are in agreement. So, I think we got them about two-and-a-half weeks ago, 40-whatever questions. Yeah. So, you should see those very soon. But we've given draft responses to all of those questions.

MR. NARAYANAN: There's actually a timeline for how the radioactivity decays and what's the timeline.

UNIDENTIFIED SPEAKER: So your system is considered to be secure for at least 100 years. Now, what happens in the other 900 years? And are -- is your company still going to be around in 100 years to move the contents to another dry cask?

This is an important question. I love my unborn grandchildren, right? I -- and if I love my unborn grandchildren, then I love my unborn great, great,

great-grandchildren. So, it's an important question.

MR. MAGGI: So the way I see that is Orano and its predecessor companies, which have, basically, been name changes over the last 50 years, backed by the French government which is very pro-nuclear and is expanding its nuclear activity will be around 100 years from now. We also strongly believe there will be a permanent depository, you know, inside of 100 years. It may take 100 years the way it's going, but there will be a facility to take this fuel, and/or reprocessing will start in the U.S. and this fuel will actually become an asset, where it can be reused or burned in fast reactors as fuel.

So, those -- there is a lot of technology out there already and coming to bear in the next decades, not hundreds of years, that will solve this fuel problem permanently.

MR. LUCAS: I have one follow-up question. And that is: I've heard -- I'm not sure that this is accurate -- but the HOLTEC transfer vehicle has broken down some months ago and hasn't been repaired. To me, that seems like a liability. It -- we would want to continue to have a transfer vehicle well-serviced for the next hundred or 200 years. So, a key question becomes, what are the failures associated with that, evaluated, what happens to the electronics in a marine environment, and how does that continue to be maintained, parts supplied, et cetera.

MR. MAGGI: So for a -- the questions are for the -- our

system of HOLTEC. So, once -- to clear the record on the CAT transporter, was used. It just came back from -- this was last summer. We had started the list. We had an issue with one of the powers not responding as expected. We stopped. But everything -- everything was in a safe condition. They moved the transporter to outside of the entity, we had the vendor take a look at it. They made some minor adjustments and we had repeated successful movements of the transporter. So, the issue was resolved at that point. But that conservatism, they wanted to do additional testing, and we actually did a load-proof test prior to engaging on the canister again. And panel members were there for the actual inspection, last week, where the transporter was used to lift. So the capability of that transporter was maintained during those times. The conservatism tests to validate that we had 100 percent confidence in the capability of that transporter before engaging on a heavy load, and that was satisfied.

Now, as far as maintaining those systems, we do maintain those. We have routine plans of maintenance. There are vendor expectations and we maintain those items, in storage with any facility at the site, and in the future, will be maintained for that.

As far as an Orano system, those will be least component, so they will not be stored on site here. But there are contractual requirements to have them available upon need. So they will be in a ready state and be able to use, if needed,

in the future, after the off-loads are completed.

UNIDENTIFIED SPEAKER: -- is for 80 years.

UNIDENTIFIED SPEAKER: Or 100 years or longer?

MR. SEVERANCE: Yeah. Those contracts are 80.

UNIDENTIFIED SPEAKER: 80 years, okay.

MR. ANDERS: Okay, Bruce.

MR. SEVERANCE: Thank you.

MR. ANDERS: Linda, you had a comment, and Miriam.

MS. SEELEY: Quick question: Did you say that these cans do not have helium in them, that they do -- that they're not pressurized?

MR. NARAYANAN: They do have helium in them, but it is not high-pressure helium. They're near an atmospheric pressure.

MS. SEELEY: Okay. Thank you.

MR. NARAYANAN: They do have helium and they have been tested.

MS. SEELEY: Thank you.

(Zoom glitch)

MR. ANDERS: Miriam?

(Zoom glitch)

MR. NARAYANAN: Yeah. I mean, as I had explained, we have a lot of aluminum in the basket. So, really, we don't need the helium to circulate within the basket. And what it does is that, if you have very low-pressure helium, you only need it for -- need tightness, we don't need for any other

purpose. That ensures that our canisters are always at lower pressure and we don't pressurize our canisters. And, that also make the consequences of accident much less severe, so we don't have a rapid pressurization or a rapid depressurization accident because of pressures are low.

MR. ANDERS: Miriam?

MS. SHAH: Oh. I -- I didn't have a question. I was just going to say that 9:25, maybe we should do the public open house intro.

MR. ANDERS: Do the --

MS. SHAH: Next item.

MR. ANDERS: Oh. Yep. That's a good idea. Thank you, everyone. Great discussion.

The last item on our agenda is introduction of the public open house and upcoming activities. And I'm going to ask Tom Jones to speak to that, since it's -- the schedule is subject to PG&E's -- NRC's availability.

MR. JONES: Thanks, Chuck. So we have been in contact with the division of NRC that is responsible for dry cask storage licensing and overseas, the safety program, and they have agreed to support and have an open house. So, we will work on them on a schedule to be determined.

Also related to the upcoming items, the long-postponed post-shutdown decommissioning activities report, which is a decommissioning-related and regulatory-required meeting to happen in the community. NRC is working with the county to

host it in this room. It's likely in the end of June. So, that will be in front of the open house.

We will still work with the panel on the dates. We need to make sure that NRC is there to directly answer the public's questions, as well. And then Dr. Budnitz is probably still on the line. He'd also like to extend to the DCESC and the CDC, so that the public can interact face-to-face with the different governmental entities that have also been looking at this project independently.

So CBC, sometime in the summer, but those are going to be the key driver's that pick the date for us.

DR. PAVLIK: This is Bob. We will support it as best we can.

MR. JONES: Thank you, Dr. Pavlik. Much appreciated.

And then, also, just to talk about the scope of that open house, we intend to host it at the Energy Education Center on Ontario Avenue in Avila Beach. We'll have subject matter experts throughout the exhibit rooms, so people can directly interact with Prakash and Roger and others from Orano.

We'll also have our dry-cask storage team there, our licensing team, lead by (inaudible) and we'll do presentations, as well. And then imagine, around shuttle van going up to the power plant, that will be 20 to 30 minutes, so people can directly tour our entity outside of the fence line, and see that it sits 310 feet above sea level, actually see the security perimeter and better understand it.

The PowerPoints are good. There's no substitute for a site visit, so we would like to make that available to the members of the community, as well.

MR. ANDERS: Thank you, Tom.

Linda, any closing remarks?

MS. SEELEY: Yes. I -- this has been a very, very interesting meeting. We're grateful to you, that you came. We still have lots of questions. I hope that we will get the written answers to our questions soon, so that we can look at them, because they're going to stimulate some more questions. We hope that we can keep up this dialogue with you. Our community is very, very interested in what's going to happen with the new Orano casks. So, you're going to -- you're going to be challenged. And we also appreciate, very much, your candidness with us.

And as Bruce said, this is -- you know, this is about people that we haven't even thought of yet. This is about the future of -- of everything, of all of our entire community. So, it's incredibly important to us.

MR. ANDERS: Thank you, Linda.

I want to remind everyone that a video of this meeting will be available on the engagement panel website, and also, a transcript of the meeting will be available in about two weeks, a written transcript will also be available. The panel website also contains -- will have all of the presentation materials that any of you or the public can download and view,

and other resource materials, like this set of questions that Linda has referenced is also available on the website.

So, with that, wish everyone well and I appreciate everybody's time and attention. And the meeting is adjourned.

(Whereupon the meeting was adjourned.)

(Proceedings concluded.)

-o0o-

STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

I, BAILEY J. ANDREWS, Official Certified Shorthand Reporter of the State of California, County of Fresno, do hereby certify that the foregoing transcript, pages 1 through 120, inclusive, is a complete, true and correct transcription of the stenographic notes as taken by me to the best of my ability via Zoom proceedings in the above-entitled matter.

DATED: FRESNO, CALIFORNIA

JUNE 12, 2022.

_____
BAILEY ANDREWS, CSR
OFFICIAL SHORTHAND REPORTER
CERTIFICATE NO. 13892