3RD QUARTER COMMUNITY ENGAGEMENT PANEL
(REGULAR MEETING)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

Oceanside, California

Wednesday, August 9, 2018

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3RD QUARTER COMMUNITY ENGAGEMENT PANEL

(REGULAR MEETING)

Transcript of Proceedings, taken at 1938 Avenida Del Oro, Board Room, Oceanside, California, beginning at 5:31 p.m. and ending at 9:05 p.m., on Thursday, August 9, 2018, before Heidi Hummel-Grant, Certified Shorthand Reporter No. 12556.

Oceanside, California

Thursday, August 9, 2018, 5:31 p.m. to 9:05 p.m.

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DR. VICTOR: -- there has been a lot of meetings about San Onofre this week. And I know many of you have been to many of them. Also, some people might be on the highway still. I was just on the highway, along with some large fraction of humanity. So thanks to San Diego Planning for that traffic. 05:31 05:38

My name is David Victor. I'm chairman of the Community Engagement Panel, and I welcome you to this meeting tonight.

Just a reminder, if there is an emergency and you need to evacuate the building, there are exits here and here when you go back out the front door the way you came in. There are also exists right behind me. 05:38

The Oceanside Police Department is here for everyone's safety tonight. And I want to thank the people of Oceanside for welcoming us back to this great facility here. And Councilmember Jerry Kern is a member of the panel that's not with us tonight, but I will make sure to thank him, as it were, for his hospitality. 05:38

Also want to mention -- and we'll talk a bit more about this later tonight -- as you -- those of you 05:38

who have been following us closely know, Edison has established a team of experts to help them develop a plan for the removal of the spent fuel from the site and for accelerating the various things, including changes in law, that will be needed to make removal of the spent fuel from the site possible. 05:38 05:39

Tonight we have two members of that panel here, one of them, Tom Isaacs. Tom, where are you? Right there. Tom Isaacs, former Office of Policy of the Department of Energy, who is chairman of that panel. Tom and I had a chance to meet and discuss the work of the Panel -- the work of the Community Engagement Panel in some detail yesterday. And we are very much looking forward to working with them and also bringing Tom's panel back to future meetings over the course of the next year or so. 05:39 05:39

Other member from the expert panel here with us tonight is Gary Lanthrum -- right over here -- Gary is a specialist on transportation of high-level nuclear waste, among many other things. He was a director of the National Transportation Program for Yucca Mountain -- the Yucca Mountain Repository. He's going to talk with us later tonight about the theme of tonight's meeting, which is about current practices in used fuel transportation. So, Gary, thank you very much 05:39 05:40

for joining us tonight. 05:40

There are a range of information booths, some from Edison, some from other organizations. Hope you had a chance to take a look at these. They will be open also doing the break. 05:40

Want to remind everybody that the Community Engagement Panel is a conduit set up between Edison and the communities for two-way flow of information. So it's not a decision-making body; we don't form decision-making procedures. But the idea was, and is, 05:40 to help Edison understand what members of the communities that are affected by the decommissioning process are concerned about and hearing, and then to help members of the community affected by -- the communities affected by the process to learn more about 05:40 what Edison's actually doing with the decommissioning process.

Want to review the agenda for tonight's meeting, which is shown up on the screen here. We're in the welcoming and opening comments phase of the agenda. 05:41 We're going to have a few general updates in just a moment, then go to Tom Palmisano's update on decommissioning, and then to Gary Lanthrum, and then back to some questions before the break. We will, as always, have a public comment period after the break. 05:41

We've shared -- thank you -- we've shared the slide deck with the members of the panel, the Community Engagement Panel, last week, and it's also, I believe posted, on SONGScommunity.com. The agenda, along with heard-to-read materials are all on you chairs. 05:41

Gary Lanthrum, I want to particularly thank you for your slides, because you've also beaten Tom's previous record of having hard-to-read slides. And so I want to thank you for that contribution tonight. And as all of you know, a couple of slides from Tom's presentation, which will be just -- Gary's presentation, which will be traffic. 05:42

The meeting, as always, is being live streamed on SONGScommunitylive -- SONGScommunity.com.

For those of you watching the live stream and also for the benefit of our court reporter, please state -- members of the panel, please state your name when you're making comments so that people know who's making which comment. And if you want the floor to make a comment or raise a question, raise your flag, like that. 05:42

If a member of the public would like to make a comment during the public comment period, please sign up on the sheet that's outside as you walked in. And there's already been 20 or so -- 25 people who have 05:42

already signed up. But that will remain open all night. So if you want the floor, please do that so we have a chance to get those comments. 05:42

And Dan Stetson and Steve Swartz will help us collect some of those comments, get the responses, where possible, tonight, and also help organize the list of comments and responses that we, as is the custom, can put up on the website. We'll talk a little more about that tonight. 05:43

If you don't want to talk in public but you still have a comment, you can send it to that email address right there within five days of the meeting finishing, and it will be part of the public record and it will get responses. And along the way I will call out various items that need action and so on so that the process works reasonably efficiently. 05:43

So let's move now and first see if anybody on the panel has any questions or comments? So far I haven't made any major errors in summarizing the agenda.

So I just want to talk through a couple slides with some updates about the Community Engagement Panel before go to Tom Palmisano. 05:43

So first, I want to just give you a couple of updates about things we've observed in the industry. First, about -- about Holtec, which is the company, as 05:44

you know, that is -- has built the ISFSI, which is the site where the spent fuel -- new spent fuel canisters are being stored, it's providing those canisters. They are also building a consolidated interim storage in eastern New Mexico. That process is moving through the Nuclear Regulatory Commission's licensing process. As far as I can tell, all on schedule, from the application that was filed in March 2017. And the preliminary schedule suggests that the license will be issued in July 2020. 05:44

I mean, as we've discussed many times at these meetings, we don't see the licensing as the big issue here. The big issue here is the needed change in federal law to make it possible to move spent fuel to such as Holtec's facility in eastern New Mexico or a similar facility that is now being restarted in western Texas. 05:44

I do want to mention there's a significant change underway right now in the nuclear industry as more plants are shut. That change is that firms are emerging specialized in the decommissioning of nuclear plants. One of the firms is the AECOM, a consortium that has the contract for decommissioning the San Onofre plant. We will, I think, within the next 12 months have a chance to hear from them in some detail as to what 05:45

that process is. It's gearing up. Tom will talk more about that. 05:45

And the other firm that is emerging in this space is Holtec itself, which has purchased the subsidiaries of three nuclear plants with the goal of acquiring those licenses, title to the fuel, and basically making a business out of effectively and safely decommissioning plants. 05:45

And I think it's not surprising that in this industry the people who build and operate the plant are not necessarily the best people to shut down the plant. So it's not surprising that consolidation or change is going on inside the industry. It's also looking to acquire and decommission ISFSI, the spent fuel pad at Big Rock. And there certainly will be others in the future. 05:45 05:46

I don't think that's material to what's going on at this plant, but I thought I would mention this, because if you're following the news in the industry, you're seeing a lot of activity about this firm. And the firm's health and the firm's activities are certainly important to us because they're a key partner for the spent fuel pad. 05:46

Next slide, please?

This will be fairly brief because nothing has 05:46

changed, really, with the appropriations process since our last meeting. As you know, we need to have a change in federal law that makes it possible -- almost certain there needs to be a change in federal law to make it possible to reliably ship spent fuel from decommissioned sites like San Onofre to consolidated facilities like in eastern New Mexico and western Texas. There have been efforts, successful efforts, inside the House to frame up that change in law. The Senate has been politically much more difficult because -- and I would say in particular because of the very close senate race in Nevada with Senator Heller, that's even difficult, the reelection campaign. And you can for or against Senator Heller, but we have to face the reality that that means that things what are advantageous to his campaign are happening in the Senate, and that include notes advancing legislation, not advancing appropriations that in any way would be seen as supportive of Yucca Mountain. And that's the reality where we were at our last meeting; that's the reality of where we are right now.

I've spent some time with folks on the Hill trying to figure out what's going to happen. Nobody knows. It's not surprising in Washington these days. We have a variety of other dramas unfolding, including a

possible government shutdown. 05:47

There had been quite a lot of hope that during the so-called lame duck sessions, after the election but before the new Congress takes over in January, in that period the legislation could advance, a variety of other 05:48 activities could advance. I'm now sensing growing skepticism about that, in part because the list of things that need to get done during the lame duck session is very long. So I wish I had a better message, more smiley faces to put on the message. But that's 05:48 kind of where we are right now. Meanwhile, these two facilities in eastern New Mexico and western Texas are soldiering on, doing their work.

I think one of the things that's going to be interesting for us to ask the people at those facilities 05:48 at meetings, Such this one early in 2019 is how far can they go before they really need the change in law, because they continue to work, we can continue to develop the railcar program -- we'll hear more about later tonight. So that's the update that I have about 05:48 the appropriations process.

I just want to pause for a moment, see if anyone has anything further to add about that?

Next slide, please?

The community asks lots of really good questions 05:49

at all these meetings, and they are gathered and answered. And I just want to flag right now that six of them in particular came up during our last meeting that need some detailed answers. And you'll hear from Tom Palmisano some answers to those questions. And Tom will talk a little bit more about other questions that have come up as well. But these six listed at the top, starting with heat removal of canisters keep coming up. They're really important and good questions -- people have asked and done their homework, and I really appreciate that -- so we're going to get some additional readout on those questions in the public setting in this meeting today. 05:49 05:49 05:49

And there's few other comments below where people have asked questions, for example, can we share notes from the visit to the Holtec factory -- two visits to the Holtec factory we had just prior to the previous meeting. And I believe we're in the process of organizing those, and we'll get those put up on SONGScommunity.com so if anyone wants to see what it is we discussed, I'll be thrilled to make those notes available. And thanks to Dan and Marni and others who have been working on this. 05:49 05:50

Next slide, please?

So before we give the floor to Tom Palmisano, I 05:50

just want to see if anybody would like to make any additional comments or updates that they think are important for us to share with the community. Okay. 05:50

Tom Palmisano, the floor is yours.

MR. PALMISANO: Okay. Thank you very much. 05:50

And welcome everybody. It's good to see the turnout, and we appreciate the interest in decommissioning and the other activities.

I've got a shorter than normal presentation, which is generally a good thing. Want to leave plenty of room for Gary on the agenda. He's the true expert in transporting nuclear fuel. So we want to make sure we take advantage of him joining us tonight. 05:50

Thank you very much for joining us.

So I'll be brief. Our decommissioning principles of safety steward engagement, we continue to live those every day. 05:50

This is a new graphic. We've had our 20-year timeline before that is always very difficult to read. So we tried to simplify. So very simply, you see we're in the pre-decommission work at this point, and we're in the process of moving the spent fuel from wet to dry storage -- and I'll status that in a minute. 05:51

And we're in the CEQA review process with the State Lands Commission. Once that process is done, 05:51

hopefully in 2019, we will get started on the major decommissioning work, which is about a nine-year window to actually physically remove the plant and structures and remediate the radioactivity. And during that period, and extending beyond, all the spent fuel will be in dry storage until there is an opportunity to transfer it off-site. Whether that's the Department of Energy under the Nuclear Waste Policy Act or an interim storage facility or some combination. And then towards the end of that period -- our plan runs out as far as 2051 -- we'll transfer the fuel off-site, work with the Navy to determine the end-stage -- remember, last year Tom talked to us about what the Navy's ultimate plans will be since it's their land -- we'll finish remediating the site. This is the non-radiological part, any substructures that the Navy wants removed, and then eventually we'll turn the land back over to the Navy. And then when the spent fuel's gone, we'll demolish this dry fuel storage facility. 05:51 05:51 05:52 05:52 05:52

So that a simplified version. This is the version we'll use in the CEP meeting from here out. It's a little simpler to understand. 05:52

Fuel transfer status to passive dry cask storage. Remember where we started. We have an existing dry cask storage facility from earlier, Unit 1 05:52

and 2 and 3 operation. There's 50 casks for spent fuel that's been on-site, was built in 2003. So fuel's been stored there for a period of time. What is in the two spent fuel pools? If you go back a year ago, we had 2,668 fuel assemblies; we are now in the process of transferring those to the new facility. We will load 73 canisters. And at the end of the day, mid-2019, have 123 canisters with all the spent fuel stored on-site. And the spent fuel pools will be emptied at that point. 05:52 05:53

This is a picture of the new facility. We now have 20 canisters loaded. Each canister holds 37 fuel assemblies. So we will load ultimately 73. So we've made good progress. We do periodically stop. We stopped over the week of Memorial Day to rest the crews. We stop for crew rest, to do maintenance on our equipment. And we're in one of those stops at this point, and we completed Number 29 last week. I expect we'll restart loading in a week or two. During this time we do our maintenance, the crews get some time off, and we look back and say, "How did it go? What did we learn?" We're very deliberate and very cautious about how do to this, and we're always interested in how we could do this better, more safely, more effectively. Areas that we've looked over the time of loading the 29, how we do welding, how we dry the canisters with helium, 05:53 05:53 05:53 05:54

how we move the canisters, how we download the canisters into the facility -- downloading is interesting because it's a complicated evolution where you've got to reposition the crane a couple of times -- so we continue to look for ways to make sure the crews have all the tools they need, all the instructions and all the training. So that's what we do during these down periods. 05:54 05:54

So we'll continue. And we're on track, as I said, for mid-2019 to complete the offloading, at which point you'll -- see there's 75 spaces there, you'll see 73 loaded with fuel canisters, you'll see one spare, and you'll see one test location. You may remember I've talked in the past that we committed to have a canister that we will test so we can monitor how it performs and inspect it without fuel in it so we can prepare to inspect canisters with fuel in the future. 05:54 05:54

MR. QUINN: Ted Quinn.

I wanted to ask, Tom, could advise on the NRC inspection practices during the current stage and what's -- what you see coming? 05:55

MR. PALMISANO: Sure. And we've talked about this before. The NRC inspects us quarterly. So they've got a series of inspections they do for a decommissioning site. So they're out quarterly. Then they come out 05:55

particularly to look at the fuel handling operations. They looked at the start of it very closely. They will come out periodically, generally during the quarterly inspections. 05:55

MR. QUINN: Do they have any reports from those inspections? 05:55

MR. PALMISANO: Yeah, they issue the reports quarterly. The last report probably is the first quarter report. They just completed the second quarter inspection. It takes them about 60 days to get a report out of their process. So those reports are all posted on the NRC website relatively easy to find. 05:55

DR. VICTOR: And that sentence has never been spoken before.

Is it possible to put them also -- to share -- 05:55

MR. PALMISANO: Yes, we can link them from our SONGScommunity website so it's easier for you to click, link and get to the SONGS.

DR. VICTOR: Because that NRC website is a maze.

Thanks, Ted. 05:56

MR. PALMISANO: Thank you.

So moving off the spent fuel, I want to talk about environmental permitting. This is important and it's very current. The State Lands Commission had two public meetings this is week. Just as a reminder, 05:56

there's two things we really need: First is a certified Environmental Impact Report by the California State Lands Commission under the CEQA act, California Environmental Quality Act. The next thing we need before we can start the major dismantlement, 05:56
decommissioning, is a Coastal Development Permit issued by the California Coastal Commission. They cooperate on this with the State Lands Commission as the lead agency, they do their EIR. The Coastal Commission then will rely on that EIR in addition to their other analyses to 05:56
make a decision on the Coastal Development Permit.

What is active right now is the first one. They published the draft EIR for public comment at the end of July. They will close the comment period -- I believe they've changed this now to August 30th, in the meeting 05:57
this week. So my slide's a bit out of date. So I believe that's August 30th. They held the two meetings, one in Oceanside on the 7th and in San Clemente on the 8th. And then right now we anticipate they will consider to final EIR in December 11th in a meeting in 05:57
San Diego. That's up to them, not us. That's just what I believe their schedule is likely to be. It depends on what they do with the comments they receive.

These are important meetings. And as part of public involvement, we wanted to make sure we advertised 05:57

before the public comment meetings -- hopefully some of you got there -- want to make sure you know when the public comment period closes should you chose to make public comments. So please, avail yourself of that so you can be a participant in the State Lands Commission process. 05:57 05:57

Moving on, David's already introduced Tom Isaacs, the chair of our expert team, and Gary Lanthrum, our expert team member. The other members, Chris Cummings, background in nuclear engineering and dry cask storage; Allison MacFarlane, former chair of the Nuclear Regulatory Commission, has done a lot of research on siting and geological repositories; Rick Moore, another transportation expert; and Dr. Joseph Picone, who's a radiation monitoring expert. So it's a very robust panel. We are looking forward to that panel interacting with our Community Engagement Panel as a resource. 05:58 05:58

DR. VICTOR: Let me just report a little more detail on the meeting Tom Isaacs and I had yesterday, which was, in part, to identify people and places where we can bring members of this is panel back here. In particular, this -- I faithfully report -- with Jerry Kern, Dan Stetson and I think which is we need to have meeting in early 2019 to refresh on where we are 05:58 05:58

with consolidated storage with these two sites, New Mexico and west Texas, and the strategy that's emerging around that. So we very much look forward to the expert team helping us talk about that. 05:58

Thank you. 05:59

MR. PALMISANO: Yeah, we're exited about the intersection, both the expert team and Community Engagement Panel, I think it's going to be a great resource to us.

Moving on, I want to just tee up spent fuel from transportation from a SONGS readiness perspective as we get ready to hear Gary's view of what it takes to transport spent fuel. 05:59

So this is -- nothing here is new. You've heard me say this before, but it's always good to review it. 05:59

So what's important is the canister systems we use are licensed for storage and transport. That is important. There's some older plants that have storage-only canisters, and that is a problem when an opportunity to move fuel off-site arises someday. So all of our systems are transportable and they're licensed by the NRC. 05:59

We have three different systems. We have two transnuclear systems -- sometimes you hear these referred to AREVA, it's AREVA Transnuclear -- then we 05:59

have Holtec Systems. So all three systems have transportation casks licensed by the NRC to transport our fuel. That's an important factor. 05:59

The transportation requirements we've included in our canister loading plans. What that means is in the current canisters we're loading, we take 37 fuel assemblies and put them it. So we had over 2,668 fuel assemblies so we spent a lot of time picking 37 assemblies for each canister so they're transportable as early as they can. So there's some science and engineering behind how you pick which fuel assemblies. So we factored that in. 06:00

The Department of Energy has been out -- and you'll see that on a further slide. We actually have very good rail access at San Onofre. There's a rail spur on-site that expanded and it ties into Pacific sun Railroad and the Burlington Northern Santa Fe. There's some plants in the country that don't have ready access to a rail site so that's problematic for them. So the infrastructure to be able to someday move this fuel particularly by rail is important. 06:00

I'm going to show a slide that shows you when our canisters are going to be ready for transportation. So let me show you that again. This is not a new slide. One of the important things the CEP asked us to do is 06:01

characterize this issue, how it relates to SONGS. So a couple of years ago we built this slide. 06:01

So the top two rows are the 50 canisters that have already been loaded with fuel for a number of years. And what I'm showing here is when the canisters are eligible to be shipped off-site. In the dry cask storage business there's two key times: One, you've got to keep spent fuel in the water pool for a period of time, typically five years. Then you can move it into dry cask storage. Then ultimately you need to move it over public roads or public rail, it's got to decay another period of time, but then depending on the canister design, shielding, the transportation casks. 06:01

So the Unit 2 and 3 spent fuel are in newer AREVA canisters. As you can see 27 of the 33 canisters are eligible to ship today. If there was a place to ship it, they're eligible to ship today. The remaining six will be eligible by the end of 2019. 06:01

You know, one is a different story. This is the old Unit 1, which closed in '92. You can see its canisters take much longer. The difference is the material in the fuel rods. Unit 2 and 3 have more modern fuel with a material called zirconium in the fuel rods. They don't have to decay as long before they can ship. Unit 1 has stainless steel and it has a higher 06:02 06:02

activation level, higher radioactivity. It needs to decay 38 years before it can be shipped, which is why you see Unit 1 -- or Unit 1, which operated -- closed in 1992 is all the way out to 2030 for the last nine canisters. Then the new canister system you can see out of 73 we'll load by the end of 2020, 67 of the 73 will be eligible to ship. And then you see the remaining six mature over the period of time by the end of 2028. 06:02 06:02

The message here -- we've talked about permanent repositories, consolidated storages. We all want to get a location to ship it to that's suitable and approved and licensed and built. We're getting ready on-site with the right type of canisters eligible to ship as soon as something is available. So this timeline matches up when you look a facility becoming available in a practical time frame. 06:03 06:03

Now, my pointer's -- guys, will you advance the slide, please?

A couple of other comments. The preparatory work for transportation, I mentioned the DOE has visited the site numerous times, particularly in 2015, looking at our facilities, looking at our transportation casks. They've documented that in the report. That website is linked right there -- this is worth looking at. They look at every closed nuclear plant in the country at the 06:03 06:03

time and write a pretty good report in terms of its readiness to ship fuel. I think the last update was 2016. So this is why we urge you to look at just the general background in terms of how they analyze these sites readiness to ship. 06:03 06:04

DR. VICTOR: Can I ask you -- first of all, I want to mention that Steve McHarris [sic] is in the audience here -- just waive your hand -- Steve has been part of the DOE effort and has been instrumental to us and this panel in helping us get access to materials, put questions back to the DEO. So I want to thank you again, Steve, for all your contributions. 06:04

Tom, when do you expect DOE to do another site visit? Or we just going to see kind of annual updates to -- 06:04

MR. PALMISANO: I think the update is every one to two years. We had a visit not long ago, which resulted in a 2016 report. So I would expect either this year or next yeah we'll see another site visit --

DR. VICTOR: Thanks. 06:04

MR. PALMISANO: -- but DOE management has changed over with the administration. So don't hold me to that.

And with that, that completes my brief overview of the decommissioning status. I'll have more to say 06:04

later on a couple topics. 06:04

So thank you.

DR. VICTOR: Thank you very much.

So now I want to give the floor to Gary Lanthrum, who's going to talk with us about the 06:05 main theme of tonight's meeting around transportation of radioactive material.

Gary, the floor is yours.

MR. LANTHRUM: Thanks.

DR. VICTOR: While Gary's going up, does anyone have 06:05 any additional comments or questions to Tom about his overview? I didn't see any agitation in chairs about that subject.

So, Gary, the floor's yours.

MR. LANTHRUM: Okay. Thank you very much. 06:05

I graduated from Oregon State University with a degree in nuclear engineering in 1975. So I've been working in this arena for 43 years now. Unfortunately, my work has been technical in nature. I've been managing some of the engineering aspects, some of the 06:05 science aspects and some policy aspects. So I'm not nearly as good a public speaker as David or Tom. So bear with me, I'll stumble a bit, I've got my cheat sheet notes here, and hopefully it will keep me on the right path. 06:05

One of the questions I was asked is why people should care about transportation of spent fuel. For me personally -- it's not a bullet on the slide -- but I like to know of all the hazards that can affect the area I live in and what's being done to mitigate those hazards. And that goes for all kinds of things: Storm water runoff, transportation of other hazardous materials, and it would go for spent nuclear fuel transportation as well. 06:05 06:06

Spent fuel doesn't get shipped as much as it used to be -- I've go another slide coming up; I'll talk about the overall history of shipments. It's been being shipped since the mid '60s. There's been a lot of shipments that have been done. The peak throughput in this country was back in the late '80s, early '90s, over a hundred shipments a year were going on. Now we're down to around between 10 and 20 shipments a year typically. A significant portion of those are Navy shipments, which are kind of invisible because they're National Security shipments. But there's an awful lot of research and development that's done on spent fuel from power reactors. They do coastal radiation examination of fuel rods, for example. So small quantities of spent fuel does get shipped fairly regularly. 06:06 06:06 06:06 06:07

I don't know the specifics about this area, but I doubt there's been any shipments of note in this area. A reason that you all might want to be engaged is because things are changing, the landscape is shifting, both Tom and David talk about the potential for consolidated spent fuel storage sites, there's a lot of shutdown reactors like SONGS. And there's a potential in the next decade or so the number of shipments could start moving from shutdown power plants particularly to those consolidated storage sites. 06:07

The SONGS Day Coders have expressed interest in getting the fuel moved off-site, and that can't be done, obviously, without transportation.

Historically, like I said, shipments have been going on since the mid '60s, 1964. Over 4,000 cask loads of spent fuel have been shipped in this country. Internationally it's been more than 25,000 shipments. And those shipments haven't just gone by rail and by truck, they've also gone by ship. There are a number of countries like Japan that wants to reprocess their fuel but didn't have the reprocessing capability. So they shipped their spent fuel by ship to France, and it was shipped from port by rail and by truck to a reprocessing facility. And the reprocessed spent fuel, the high-level waste, was then shipped back to Japan by 06:07 06:08 06:08

ship. So there's been a lot of international transportation as well as the shipments in this country. 06:08

There have been accidents. There has never been an accident involving spent fuel where the transportation conveyance, the cask, was breached. And this history of 4,000 cask shipments, this -- whoops, can you go back a slide? 06:08

This book -- I've got a link here at the bottom of the slide. It's a report that was put together on the history of all the accidents that have taken place. If you're interested in looking at details, it's a great reference. It's got a lot of information about every single accident that's happened. 06:08

The worst one that happened in this country was back in the '70s, I believe. There was a shipment of spent fuel headed to Oak Ridge National Laboratory by truck. The truck was heading down the highway -- I believe it was highway 25, it's a 55-mile-an-hour two-lane road -- another semi coming the other way veered out of its lane. The driver of the truck carrying the spent fuel veered off the road to avoid a head-on collision, went down an embankment. The truck skidded for 300 and some feet, it overturned. The skid, the -- basically the brace that holds the spent fuel cask -- popped off the trailer. The truck overturned 06:09 06:09

with it's trailer and slammed into some trees. The collision killed the driver. The cask was partially buried in a ditch. It ran into the dirt. A team of experts descended on the site fairly quickly. They did radiation surveys. The cask was in good enough condition -- even though the truck and the trailer were destroyed -- they just cleaned it up and were able to complete the shipment on a different truck to a bridge. That's the most severe accident that's happened. There hasn't -- haven't been other accidents that have come anywhere near close to endangering the cask. So overall that -- for spent fuel, it's got an enviable safety record. 06:09 06:09 06:10 06:10 06:10

Here's a couple of pictures of the kinds of casks that are used. This is called the M290 cask. It's the most recent cask the Navy used to ship the spent fuel. This was used to defuel the Enterprise Aircraft Carrier. It completed its decommissioning in Newport News, I believe, in 2016, the last of the fuel was shipped. This is called the M290 cask it weighs 290 tons. It's a very large cask. 06:10 06:10

This cask and the picture around it is a TN Reg cask. It was used to ship spent fuel from West Valley. We did start doing some reprocessing of spent fuel in this country. It was halted during -- I believe, 06:11

Johnson stopped it initially and then Reagan formalized the halt with an Executive Order. And there was an amount of spent fuel shipped to West Valley for reprocessing that was never reprocessed. These casks were used to ship that fuel from West Valley to Idaho. And you can see the workers here -- this is a loaded cask, it's got spent fuel in it -- these are emergency responders and they're doing radiation surveys of the surface. They're using a stick with a detector up against the side of the cask to make sure it meets the shipping limits before it leaves West Valley. That shipment was completed successfully. In fact, it was actually completed ahead of schedule. 06:11 06:11 06:11

This is an NAC -- it's called the STC cask. There aren't many of these cask in this country because there's not a lot shipments of these large volume canisters going on. This is a cask that NAC sold to China. I believe Holtec is in the process of fabricating some casks that they are also sending to China. China is already consolidating their spent fuel and they're using U.S. casks for that work. 06:11 06:12

The one called -- this is called an LWT. That's a fancy acronym for legal weight truck cask. It's a much smaller cask. It only holds one fuel assembly. Fits with its skid -- and this is the skid for this 06:12

cask -- you can kind of see the skid on this one -- and the skid is really bolted to the railcar on the Navy cask, but this fits inside a Conex box, and that box can then be put on a ship or on a train or on a truck. It's light enough to go by truck. Legal weight truck shipments are limited to 80,000 pounds. And so none of these large casks can go by legal weight truck. They could go by heavy haul, which requires special permitting, or by rail. 06:12 06:12

Back in 2016 the National Academy of Sciences -- they have an R&D arm called the National Research Council -- they did an in-depth study of the safety in shipping spent fuel in this country. And they actually published a book -- this is the book itself -- and a group paid to have that available to the public. It's on the National Academy of Sciences Library site -- and that's web link to it so you can download an ecopy of the book -- it's got detailed information about the history of shipping. 06:13 06:13

Their conclusions were basically that there are no fundamental barriers to the safe shipment of spent fuel in the country and that current U.S. regulations were adequate to provide that safety, and the safety of spent fuel shipments, because of the structure, was several orders of magnitude safer than shipments of 06:13 06:13

other common hazardous materials. 06:13

This is a graph from that book.

DR. VICTOR: This graph, I believe, is on your chairs.

MR. LANTHRUM: So it's a bit of an design chart challenge. 06:14

I didn't want to spend a lot of time on it, but the basic idea is that -- risk is up on the vertical line, and this is a logarithmic scale -- so each horizontal line is ten times riskier then the line below it. So it goes up by a factor of ten each time. 06:14

This is the risk associated with spent fuel. This is the risk associated with shipping methanol. This is the risk associated with shipping propane. And the top one is chlorine. Which basically says that the shipments of spent fuel has multiple orders of magnitude increased safety over other common hazardous materials. 06:14

The second graph I have here is from the federal -- actually from the Association of American Railroads. This takes all the rail shipments of hazardous materials -- and there's nine classes of hazardous materials; spent fuel is part of Class 7, which includes all radioactive materials -- and this shows a large volume -- it's over a million shipments -- and that's railcars -- of flammable liquids, over 06:14 06:15

300,000 shipments of gases -- chlorine falls into the gases classification -- the total radioactive shipments was just 8,000. And if you break that down, that includes medical isotopes; it includes industrial isotopes; it includes a whole range of things that are radioactive, not just spent fuel. Spent fuel only accounted for 11 of those 8,000 shipments. And this is dated from 2015. The data doesn't change much year to year. The basic breakout for an industrial country like ours is pretty much the same year after year after year. 06:15

So you have this converge of information where each shipment of spent fuel is less risky than the shipments of other hazardous materials and there are far fewer of the shipments in this country. And that will remain true, even if Yucca Mountain were to become active and the plants across the country were shipping fuel to dispose of to Yucca or just some other repository. 06:15

There's three reasons for this. It's not an accident that the safety record is there for spent fuel shipments. The first pillar is really effective regulations; the second one is really robust package designs; and the last one is enhanced personnel training -- it's not just given over to anybody to do. So it's -- those are the three things that kind of 06:16 06:16

backup the safety record and provide the structure of it. 06:16

The first bullet here -- again, this is a design chart, this is what David kind of chastised me for, was having too much information -- but spent fuel is the only hazardous material where the packaging is required not just to survive normal conditions of transport, it's required to survive severe accidents without breaching the package. It's the only one. Chlorine and hydrous ammonia, a number of other volatile materials that are poisonous, don't have that requirement. So that's a very unique requirement. 06:16 06:16

It's not just because people are more worried at spent fuel, most other hazardous materials have some corresponding social benefit. If you live in a city, you get chlorinated water out of your tap. That chlorinated water is -- is produced by chlorine -- compressed chlorine gas in rail tanker cars. So it's got some social benefit. There's a need to be able to get a lot of that, move it around the country constantly. 06:17 06:17

Spent fuel has already given what it's got to contribute to society with the power; it has no further use. So you don't have to design transport conditions to allow efficient shipment; you design them solely for 06:17

safety. It's probably the only hazardous material where safety is the sole concern; there's no corresponding social benefit trying to maximize through-good. 06:17

Other things that apply to the regulations is that that communities that the shipments are going to be passing through, states and tribes, are pre-notified, they get advance notification so their safety officials can be ready for the shipment and be prepared, know when it's coming. 06:17

Shipments by rail are speed limited. They can't travel at the same speed as other commodities. Most hazardous materials travel at 80 miles an hour. Spent fuel shipments are limited by rail to 50 miles an hour. 06:18

There are enhanced inspections of shipments by truck. There's this inspection program called the Commercial Vehicle Safety Alliance, Level 6 Inspections. Some states require those inspections each time a truck carrying spent fuel enters their jurisdiction. We stop the truck, they pull over, a CVSA inspection team comes up and does a multi-point safety inspection. 06:18

For shipments by rail there is a 27-point criteria that the railroads are required to through to evaluate the safety and security of those shipments. That data has to be updated on an annual basis. It's the criteria used to select routes that are used to ship 06:18

rail shipments of spent fuel. And again, that's something that doesn't apply to all hazardous materials. 06:18

DR. VICTOR: Before you move on --

MR. LANTHRUM: Yes.

DR. VICTOR: -- a year or so -- a year and a half ago, I think, the leadership of this panel wrote a letter to the California Energy Commission asking the Commission to begin the process of figuring out what we needed to do in California to do the regional planning, preparedness and so on, because of all the kinds of things you're talking about here. 06:19

MR. LANTHRUM: Sure.

DR. VICTOR: And I would say our impact on the California Energy Commission appears to have been zero. So we'll try that one again. 06:19

But help us understand what the -- what the time scale is to do the regional planning and coordination and so on. I know later in the presentation -- I'm talking about the time for the approvals is six months to two years. But it seems like there is a larger process that because nobody's moving commercial spent fuel nobody's doing that planning. And how much -- when does that process need to begin? 06:19

MR. LANTHRUM: It's an answer that has two parts, because it depends on who's shipping it. 06:20

Under current regulations, private shipments of spent fuel, there is no requirement for coordination or preparation other than what states -- all states have emergency preparedness groups that deal with a wide variety of hazardous materials. And states get funding through DHS to pursue a wide variety of hazardous material training exercises. 06:20 06:20

Department of Energy has a special set of training for spent fuel. It's the TEPP, Transportation Emergency Preparedness Program, and it's run out of the Department of Environmental Management, the Department of Energy. And they've done a full sweep -- I've got a link to that later in the slides -- of training information that can be used by states and local communities to prepare for these shipments. 06:20 06:20

When the Nuclear Waste Policy Act -- Amendments Act was passed, it included a requirement -- it's Section 180(c) -- that the federal government had to provide funding to states -- and it's been amended to include tribes because of their sovereign nature -- to provide for specific emergency response training for spent fuel shipments. And there was a commitment in a draft ruling that that funding would flow three to five years before the shipments took place. 06:20 06:20

There is not a similar corresponding requirement 06:21

for private shipment of spent fuel. And so what is done is somewhat up to the shippers. They can work with states and encourage states to tap into things like TEPP, this Transportation Emergency Preparedness Program, to get the information that's available. And it's also incumbent on the states. If a state knows there's going to be shipments of spent fuel through its jurisdiction to maybe shift some of its hazardous material funding over to look at spent fuel rather than focusing on other commodities. 06:21

DR. VICTOR: Can I suggest as an action item for Edison, maybe with us, Gary, to sharpen up what the time horizon is here? Because we've been operating with kind of the three- to five-year concept. But, you know, meanwhile time goes on. And in theory those two facilities could be open in 2022 or 2023 to take spent fuel shipments. So that suggests that it's really five years that -- that's today. So maybe we can sharpen this up and figure out whether we need to talk more about this. 06:22

MR. LANTHRUM: I can say that those 10 to 20 shipments a year that are going on currently are being done without any specific funding target event. So each new shipment program that comes up, there is a degree of coordination to be done to make sure all the 06:22

parties understand what their roles and responsibilities and expectations are. 06:22

DR. VICTOR: Any other comments or thoughts on this slide? Danny?

MR. STETSON: Sure. Thank you very much, Gary. 06:22

So with reference to the authority, if this particular city our county doesn't want it to go through there, do they have the authority to stop the shipment?

MR. LANTHRUM: The cities and counties don't. States have some jurisdiction for highway shipments under the Department of Transportation Rules, under 49 CFR. States can propose alternate routes within their jurisdiction, but they can't block a shipment. And the ultimate shipments that they propose will have to meet all the safety criteria that exists for any 06:22 06:23 shipment. And so you can just propose an alternate shipment. It would be difficult just to block a shipment. It has to meet all the safety criteria.

MR. STETSON: So what agency has final authority over shipments? 06:23

MR. LANTHRUM: The Nuclear Regulatory Commission has -- ultimately approves the shipments. They have to approve the security plan for the shipments. And the shipment has to be in compliance with DOT requirements. And so there's kind of a split responsibility: The NRC 06:23

approves the security plan, the Department of Transportation sets forth the base requirement you have to meet; and then the package requirements are governed by the Nuclear Trade Commission again. If you meet all those requirements, there's -- there's not a provision for blocking a shipment; it's interstate commerce at that point. 06:23 06:23

MR. STETSON: Thank you.

MR. LANTHRUM: Any other comments, questions on this topic before I click? 06:24

DR. VICTOR: Thank you.

MR. LANTHRUM: Okay. The other thing, next part of the safety protocol is the hardware. Again, unique to hazardous material shipments, shipments by rail of spent fuel require special railcars. Those -- there's only one of those cars currently operating. 06:24

I showed a picture of the Navy's spent fuel cask a few slides ago. That was one of the new railcars that meets the Association of American Railroads S2043 Operation Standard. There's a whole bunch of things in the standard. It provides realtime tracking of important factors affecting the health of the railcar. Varying temperature. The suspension system under railcars are called trucks. I don't know why they call them trucks, I guess every industry has to have its own 06:24

set of terminology, and the suspension on railcars are called trucks. The rail in this country is not really great. It's not always perfectly aligned. So as trains move down the track, the suspension under the railcars wobbles back and forth with irregularities in the track. And that is called truck hunting. And so railcars that ship spent fuel have to have monitoring for truck hunting. If the truck hunting gets severe, they have provisions for stopping the train or slowing the train, because that contributes to a tendency to derail. So they track a lot of factors that can effect the ability of the train to stay on the track. Again, that's unique for any hazardous material moved in this country. 06:24 06:25 06:25

There were provisions for reduced stopping distance. They had a provision for electro pneumatic brakes. So when you hit a brake signal, electricity would send that signal to all the cars in the train simultaneously. So if you had a hundred-car-long train, you didn't have to wait for a compressed air signal to travel down a hundred cars. They removed that requirement because the length of spent fuel shipments, the trains, for security purposes, will be three to five cask cars at most, short enough that you don't get any benefit from electro pneumatic brakes. And there are not many engines out there to pull the railcars and the 06:25 06:25 06:26

signaling structure for tripping for electro-pneumatic brakes. So they use just the standard compressed air brakes. 06:26

But the realtime monitoring of things was a big deal. There is a requirement to do actual surveys of the track that the train will travel down before it goes down for a shipment. That's, again, unique to hazardous materials shipment. And then there's that 27-point safety security criteria that railroads have to go through to approve the shipments before they're done. 06:26

And this particular railcar that's on the slide is a depiction of the Atlas railcar that was being developed -- is being developed by the Department of Energy. It's a 12-axle car; it's a really big railcar. The thing is, I believe, 70-some feet from end to end -- 73 feet long. It can't be accommodated on all tracks. Some track has curves that are too tight for the railcar to go down. This car has been designed; they've got prototypes built; and they are planning to start testing for those railcars, I believe, in 2019, if the appropriations provides the funding for it. 06:26 06:27

To fully qualify a railcar to ship spent fuel, to complete the qualification process, a hundred thousand miles of use is required. And so it's an extensive test program. And they don't require just 06:27

qualification of the cars, you have to qualify the dynamics of the whole train. So if you've got three cask cars, two buffer cars, and a security escort car and train shipment of spent fuel, you have to qualify that -- they call it a consist, the arrangement of all the railcars together. That makes -- again, it's a requirement above and beyond what exists for other hazardous materials. 06:27 06:27

DOE is looking at designing an eight-axle car, which would be shorter, that you can get into more sites, but I don't believe there will be any challenge to the 12-axle car in the SONGS with the straight track they've got coming into there. 06:28

DR. VICTOR: It's my understanding they have a multiyear appropriation already in place for the railcar testing program? Or do they still need an appropriation for that? 06:28

MR. LANTHRUM: I can't answer that question.

DR. VICTOR: I think we'll come back on that. I think they have the appropriation for that but just for testing. 06:28

MR. LANTHRUM: In January of this year Pat -- Pat Schwab is the fellow at the Department of Energy that's been heading up the railcar development program. He gave a presentation and seemed to indicate that the 06:28

testing in 2019 was contingent on funding. I think they had a plan in place, but I don't believe they had money appropriated. 06:28

DR. VICTOR: We'll get to the bottom of that. And I'll make sure the next step that we, as a panel, has an update on that. You know, there's so many things that delay, have the testing delayed, because they don't have money in the measurement of millions. It would be nice. So -- 06:28

MR. LANTHRUM: I don't disagree. 06:29

The good thing is that the Navy has cars that they've been using and there is potential for borrowing cars from the Navy that have already been qualified. And those also 12-axle cars. They're very large cars.

I've got a link on here. I'm going to ask Manuel in just a minute to click it and see if I can get a movie to show. But if it doesn't work, I wanted to go over these pictures. 06:29

Back in the '70s, which was quite a while ago -- and I think maybe one of the tests in England was done later -- a series of crash tests were done with actual spent fuel casks. These tests weren't done to prove the cask could survive a crash -- they already knew they could -- the tests were done to validate the models used to predict what would happen in a crash. So they were 06:29

for benchmarking tests. They want to make sure the models actually predicted real-world performance so as they developed new casks they could rely on the data the model showed. 06:29

The tests are impressive, you know. And so I'm going to ask Manuel to go ahead and click it. 06:29

The first one is actually a test in England. And the cask looks very different than the casks we use here.

Bear with me. And, Manuel, could you click the link? And everybody keep your fingers crossed. 06:30

"Only a full-scale rail cash will really prove the point. So in July 1984 the CPTP organized Operation Smash Hit. The same flask as was used at Checker was fitted with a new lid, filled with a ton of water, 200 steel bars -- once again, to simulate the uranium fuel rods -- festooned with measuring instruments and mounted on a British Rail flat rail, the kind of wagon used for transpiring operational flasks. 06:30

"This was then derailed and turned on its side on a stretch of British Rail test track at -- in Leicester as if it were a real accident. The train was set in motion without the driver. Eventually it reached a hundred miles an hour. It plowed headlong into the derailed flask. 06:30 06:31

"The draw hook on the front of the locomotive hit the edge of the cask, but the lid stayed bolted in position. There was some scarring of steal and buckling of the outside cooling thickness, but the flask had been pressurized to a hundred pounds per square inch before the test, and measurements taken afterwards showed that only 0.26 of one pound of pressure had been lost. Proof that it had remained intact and totally safe for the public had it contained actual radioactive materials." 06:31 06:31

The next test -- 06:31

"The first test: A truck generated 22 tons spent fuel cask impacted a 690-ton concrete block at 60 miles per hour. It was cleaned up and impacted a second time but at 84 miles per hour. The cask also survived this more violent crash with only minor damages." 06:32

MR. LANTHRUM: I'm hoping that Manuel can stop -- good. Thanks.

The piece that he pulled off was an impact limiter. They put -- basically like crumple zones in a car -- they put pieces on the ends of the cask to absorb the impact. That's a sacrificial piece. So it was pulled off. This is the actual end of the cask. There's some deformation, but the bolts are all still in place; the steel isn't ruptured; the cask is intact. 06:32 06:32

Go ahead and continue it, Manuel? 06:32

"In the third test a diesel locomotive crashed into a truck at 81 miles per hour. The stalled truck carried a 25-ton shipping cask."

They had to use rockets to get the locomotive 06:32 accelerated to speed on this short --

"Cask deformation was not all [sic]. And the ability of the cask to contain and shield its radioactive contents was not compromised.

"The final impact test had a 74-ton shipping 06:33 cask carried by a cask railcar crashed into the concrete block at 81 miles per hour.

"This same cask and railcar were positioned over a pool of jet fuel and subjected to an engulfing fire, much more severe than the fire that might occur in a 06:33 train wreck.

"After 90 minutes, three times the duration of current qualification test criteria, surface temperatures exceeded 1400 degrees Fahrenheit. But inside the cask where the spent fuel rods would be 06:33 contained, temperatures were below 300 degrees, not enough to melt the spent fuel rods."

MR. LANTHRUM: Again, these tests were done not to demonstrate the safety of the cask but to validate the models used to design the casks. And the models were 06:34

tweaked a little bit to reflect real-world results. 06:34

In the railcar test they showed the train running into the brick wall and then the locomotive running into a cask at over 80 miles an hour. Remember the trains carrying this fuel are speed limited to 06:34 50 miles an hour. So the level of safety is, again, unparalleled in any of the hazardous material transportation in this country.

Here's a -- just a comparison. And I was cautioned to not say: Don't worry about spent fuel, 06:34 worry about chlorine. I don't want to pick on chlorine -- chlorine is a hazardous material, it's a gas, and it's a poison by inhalation -- but it does have lots of beneficial uses; you need lots of chlorine to provide general health for water and other things in the 06:34 country. So chlorine's an important industrial material as well as being a hazardous material.

The wall thickness of the tanker car for shipping chlorine is less than an inch thick. The tip-over requirement for a chlorine tanker car for 06:35 surviving is nine miles an hour. So it's way less than what you have for spent fuel.

A spent fuel cask has got 14 inches of material -- this is a generic 150-ton cask; I can't show detailed descriptions of any of the vendors' casks 06:35

because they're all proprietary designs -- this is something from the Nuclear Regulatory Commission, but it's basically a 14-inch-thick wall. This 150-ton cask is used to ship roughly 12 tons -- a little less than 12 tons of spent fuel. 06:35

The chlorine tanker car, you've got, I believe, 70-some thousand pounds of railcar shipping 90-tons of chlorine, 180,000 pounds of chlorine. So again, you've got economic reasons to want to be able to move lots of hazardous materials for other beneficial use. For spent fuel the only concern is safety. It's not an efficient transportation system; it is a safe transportation system. 06:35

The last pillar of the safety is personnel training. All nuclear work is done under what they call a SCWE structure -- it's a safety conscious work environment. Everybody that does nuclear work is trained over and over again that raising concerns about the way work is done is part of your job and something that you have to pay attention to. If you feel there's a safety concern, you are encouraged to raise it. That's part of the culture working in the nuclear industry. And again, it's one of the few industries that actually encourages -- openly encourages notification, raising concerns, raising issues. So 06:36 06:36

that's a key pillar of part of this. 06:36

The other thing is that all spent fuel shipments are required to travel with a security escort, whether it's a railcar or a truck shipment. For trucks they typically work with state police from the states they're 06:36 traveling through, the state police cars travel with the truck. For railcars they actually have an escort car. It's a modernized fancied-up caboose, basically, that has communications equipment and a safe place for guards. Guards travel with the trains. Again, that's 06:37 unique to hazardous material transportation. There's alcohol and drug testing for the crews that work on the trains or the drivers for the trucks that ship spent fuel.

And as I mentioned earlier, for states that want 06:37 to bring their emergency responders up to speed, there is this Transportation Emergency Preparedness Program that's run by the Department of Energy that provides extensive training about what roles and responsibilities are and what skills are needed to deal with these 06:37 shipments.

And the last slide I believe I have is current status. You can't ship this fuel off of the power plant sites until you have a licensed place to ship it to. Right now there isn't one. There is work being done on 06:37

two commercial sites for consolidating spent fuel storage -- and that was mentioned by the speakers -- one in southeast New Mexico and one in northwest Texas. There's also the potential for a repository being started up again. At some point this fuel is going to be moved to another location, and it looks like we're getting closer to where that point might be. 06:37 06:38

Special railcars that meet the S2043 requirements have been designed. One of them has gone through the testing and qualification program; the other is expected to start its testing in early next year. Keep our fingers crossed for that. 06:38

The casks that will be used to transport this equipment have been designed and have been licensed by the Nuclear Regulatory Commission. Hardware doesn't always exist in this country to actually do the shipments. There's about a two- to three-year lead time to buy the casks, to get them fabricated. But the designs are there and they're approved. 06:38

Approval of the routes. The railroads have their responsibilities. They update their data for safety and security on an annual basis. When you submit a request to ship from Point A to Point B, they have to find what routes meet that criteria, and then that route is then submitted to the Nuclear Regulatory Commission 06:38 06:39

for security approvals. 06:39

Similarly for truck shipments, there's an approval process for truck shipments, also approved by the Nuclear Regulatory Commission, that can range for a new route six months to a year depending on 06:39 complications, the length of the route, how remote the area that it's either being shipped from or to is and what kind of access there is.

Who will own the fuel when it leaves the power plant is another big stumbling block on shipping. That 06:39 has lots of ripple effects in terms of liability. The original expectation from all utilities was that the Department of Energy would pick up the fuel and take title to it when it picked it up and moved it to a repository location for ultimate disposal. If it winds 06:39 up going to a private storage facility, roles and responsibilities for fuel ownership is something that has to be waded through, what that means for liability has to be understood.

The good thing is that SONGS is actively engaged 06:39 in understanding all the aspects required to prepare the fuel from a nuclear engineering perspective, from a safety perspective and a transportation perspective, to be able to move it off-site when there's an opportunity to so. 06:40

I believe -- last conclusions. The safety record for these shipments is unparalleled in the hazardous material world. It's currently being shipped every year. Like I said, currently it's 10 to 20 shipments a year. And SONGS is, in fact, preparing itself to do this responsibly if and when an opportunity arises. 06:40 06:40

I think I had a slide for questions. But I believe you'll take care of that later?

DR. VICTOR: Thank you very much. 06:40

So first to Ted Quinn.

MR. QUINN: So I'd like to go back to Slide 36, if we could. I think it's got the reverse -- okay. I think from the public -- I think this slide, first, could be turned into a schedule. Each item is related to a critical path that relates to the Number 1 question from this audience, and all of our audiences: When can the fuel move? 06:40

And each of these -- I'll take the first three. We'll take the first three. 06:41

It's important to know a timeline -- and I think your special committee can address this -- that address to the rail cars in this -- not just the qualification, but then the procurement and then the procurement by Edison. The potential of what is the earliest date, 06:41

what's the potential. Because it seems like there will be a significant number of -- will we own the railcar? Will it be owned by the government and then just rented or loaned to do the actual shipments when they're ready? 06:41

The same goes for the transportation casks. I'd like to understand for the three different vendor designs we have -- and maybe these answers aren't something for today, but I would like to recommend to the chair that -- first, he answer today, but that we look at this as a critical path timeline, because we need to answer this public of when we can move the fuel. And it's not just about when a site will be ready. 06:41

MR. LANTHRUM: That's true.

There are multiple options for procuring the hardware. When I was the transportation director for Yucca Mountain, I had a number of companies come to me and propose that in exchange for a sole-source contract giving them the funding to move all the spent fuel, they would buy all the hardware themselves and just operate on a contract to actually do the movement. That's an option that may be still out there, particularly as these two sites get developed. There's also the option of directly procuring both the casks and the railcars. So there's a range of things. And each option you pursue would have a different timeline associated with 06:41 06:42 06:42

it. 06:42

DR. VICTOR: Can I just -- I'd very much like Ted's comment -- and maybe this could be part of the expert report or reports -- we've also spent a little bit of time on that in this group. 06:42

The scenario that most people have been talking about is the federal government procures these railcars and thus they begin with the testing program, and then they buy what goes through the testing program in larger numbers, for which there's no appropriations right now. 06:43

It would be helpful in this kind of critical-path approach to understand if for some reason, say Congress is not able to agree on anything -- not implausible -- that the federal government can't do this, that then what is time horizon for which -- over 06:43 which a private company could procure, test, meet S2043 and then bring in the service, private rail cars? Would that be seen as illegal under existing law? I think that's an ambiguity about the legality. But then most importantly it's some questions about what the timing 06:43 would be for that --

MR. LANTHRUM: Sure.

DR. VICTOR: -- so we can understand what the real-world time path might be.

Tom Palmisano? 06:43

Oh, I'm sorry, Marni. On this same thing? 06:43

MS. MAGDA: Yes, I'm just concerned about the need -- oh, thank you.

DR. VICTOR: Marni Magda.

MS. MAGDA: Marni Magda. 06:43

I'm just concerned on your Slide 34 with you're giving us all, you know, the -- how safe the shipment will be. The generic 150-ton cask for spent nuclear fuel transport does not look like it's the specifications of what we're used to seeing for Holtec 06:44 with its canister in a cask. And I just would like to understand how close this is.

MR. LANTHRUM: Sure. Generically they're very similar. What you see in this one -- this is what would be called a bare-fuel cask. Right now SONGS is 06:44 loading all their spent fuel into canisters, and the canisters are going into dry storage.

There's a basket arrangement in this transport cask that is actually in the canister that SONGS is currently loading. And so in a SONGS configuration what 06:44 you would have is another two inches of steal inside this around that basket. And so it actually adds even more layers of protection, another layer of.

Most of the casks that are being designed now are being designed so they can ship either bare fuel 06:45

with this basket in the transport cask, or they can ship the canister by pulling the basket out of the transport cask and loading a canister in. But the canister has the basket inside it. 06:45

MS. MAGDA: Thank you. 06:45

MR. LANTHRUM: You're welcome.

DR. VICTOR: Tom Palmisano?

MR. PALMISANO: Yeah, a couple of comments. Okay. Thank you. I have a couple of comments.

But just following up on that, we know the canister system we're using, we know the specifics of the three transportation casks, the two by AREVA, one by Holetec. In a future meeting I can bring you at least the nonproprietary information. 06:45

The two other comments I want to make, SONGS actually shipped 270 spent fuel assemblies in the late '70s and early 1980s to a GE facility in Morris, Illinois. This, again, was back when spent fuel was going to be reprocessed. Now, those were shipments done by trucks. So one picture you showed, spent fuel has been shipped out of our specific facility, again, by tuck, to Morris, Illinois. 06:45

The other thing you mentioned, the 12-axle railcar. We have used 12-axle railcars on-site most recently in 2014. Some of you may remember I showed a 06:46

picture if it, actually. We shipped out the Unit 2 generator rotor after the plant was closed and sold. It's heavier than any of our spent fuel canisters or shipping casks, and it fits on our site. We are fortunate with our rail spur and our rail access that can handle that long 12-axle railcar. 06:46 06:46

MR. LANTHRUM: Excellent.

MR. PALMISANO: So I just wanted to add those comments.

DR. VICTOR: Thank you. 06:46

Mel Vernon?

MR. VERNON: Good afternoon. The question that entered my mind is: Are those canisters, these transportation canisters, are they reusable?

MR. LANTHRUM: Yes, the casks are reusable. The terminology -- the canister is what SONGS is loading and putting into storage. That canister goes inside -- this is called a cask. And these casks have bolted lids, whereas the canisters that SONGS is loading have welded closures. And so you put the canister inside the cask and bolt a lid on the cask, move the canister to where it's going to go, unbolt the lid, pull the canister out, bolt the lid back on and move the transport cask wherever you want to use it next. So it is reusable. 06:46 06:47 06:47

MR. VERNON: Thank you. 06:47

DR. VICTOR: Any other comments? Questions?

I think it's been exceptionally helpful informing us. Thank you very much for spending the evening with us and telling us about why we should be 06:47 worried about chlorine.

I am still mystified as to how the British Rail System is unable to get people to safety before they can go, it seems if they'd be able to deliver on spent nuclear fuels. But that's a question for another 06:47 meeting, another group.

Tom Palmisano, we had asked you to follow-up on a handful of big questions and comments that were made last meeting, in particular. And so why don't you have the floor to talk about that? 06:47

MR. PALMISANO: Okay. Thank you very much.

And again, Gary, I'd like to echo the thanks for supporting us, not only tonight but on the expert team. Your experience and insights have been very valuable in helping to answer some of the questions we have. So 06:48 thank you.

So I'm going to follow-up on a couple -- I think we had -- there's six questions to follow up on. I'm going to keep this brief so we have adequate time for a break and public comment. These were the topics. So 06:48

today I'm going to just touch briefly on these six: Heat removal from canisters, just to show you our defense-in-depth slide, talk about radiation monitor reporting, discharges via the ocean conduits, there was a question on the warranties for the canisters we're using, and then what we're doing on the extreme events workshop plan. Then, as David said earlier, in the future we'll come back to these topics and keep a running list of topics for report back. 06:48 06:48

DR. VICTOR: Can I say of couple words about -- this it not the totality of the things raised in the last meeting. Can you just remind us all of what happens to all the questions that come up at these meetings? 06:48

MR. PALMISANO: Sure. Sure. We take all the questions, and if we don't discuss them in the meeting -- or either way, try to write up an answer, post it on the website. And we've tried to improve the website so things are more readily available and easier to find the answer to. So we keep a running list of those questions and answers. 06:49 06:49

DR. VICTOR: If people have feedback on the new website that would be helpful. The old website was NRC worthy.

MR. PALMISANO: Thank you. Thank you.

Our web design people are really excited about 06:49

the new website. So we are looking for feedback. 06:49
Again, we want to make it easy for you to find out information.

Question about temperature monitoring and heat removal. We've talked before about that these canister 06:49
dry storage systems are passive. Basically you need no electricity, you need no water flow, et cetera, it's just natural air circulation outside the canister. The spent fuel inside the welded and sealed canisters is surrounded by helium. Heat dissipates through the 06:49
helium and canister walls and air just circulates around. It's just sort of a convection system. All the dry cask systems basically work that day. And we have both horizontal and vertical.

So a question came up: We do monitor outlet 06:49
vent temperature. The current AREVA system, the 50 systems, has the permanent temperature monitors installed. The Holetec system will install the permanent monitors once we finish all 73. We check these as we load them and confirm they're working 06:50
properly.

The question: What is sufficient? So with these systems basically once you know you've got the right temperatures, your inlet temperature, your outlet temperature, you make sure the ventilation openings are 06:50

free of obstructions, the system just works by convection and naturally. So across the domestic industry we have 30 years of experience monitoring this. We specifically ask 15 years experience. 06:50

What prompted this question, would it make sense to put temperature monitors on the shell of the canister? We've looked at that, and that is not needed to understand if the system's working properly, really doesn't add information, doesn't tell you anything about the fuel temperature inside. The key thing is the free-flow of ventilation and monitoring the outlet temperatures, which we do. So that's the basic answer to that question. 06:50

And it was kind of linked: Would you detect a leak in a canister? We've talked before about the degradation mechanism concerned the chloride stress corrosion cracking. Temperature isn't going to identify a type through-wall microscopic crack. So it's a time useful event. 06:51

DR. VICTOR: We're going to talk in a just a little bit about radiation monitoring. I know a lot of people have -- 06:51

UNKNOWN SPEAKER: While you're doing this one, can you talk about the research that's occurred and are any of the results similar to what we're doing here? 06:51

MR. PALMISANO: I can talk -- every single one -- 06:51

UNKNOWN SPEAKER: Temperature monitoring and sensor position?

MR. PALMISANO: Well, yeah. I think what I'm familiar with -- and I didn't come in prepared to talk about that in depth -- but EPRI is involved in basically confirming the thermal analysis models that are used to design the canisters. But what they have found, and what the industry has found, is we're pretty conservative. In other words, the canisters function more effectively for heat removal and fuel's actually kept cooler than the models we predict. That's the research I'm familiar with. 06:51

UNKNOWN SPEAKER: Just in future meetings, can we hear what is the results you're publishing? 06:52

MR. PALMISANO: Sure. Yeah. Okay.

So again, we'll capture that as action, come in -- where I can come in or we can invite EPRI, who comes out periodically, help talk about the work they're doing. 06:52

Next one, I'm not going to spend a lot of time. We created this slide to continue to circle back through topics where we talk about defense-in-depth, how these systems are designed, how they're fabricated. You heard a couple this evening, members talking about peening of 06:52

the canisters that Holetec is doing on the new canisters -- that was a direct result of public comment, CEP comment -- to make them more resistent to corrosion -- chloride stress corrosion cracking. What we do from operations, maintenance and security, future inspection activities and future remediation. These are the dates where we have discussed these and will continue to discuss these. So that's what I'd like to show on this slide here. 06:52 06:52

DR. VICTOR: This was a result -- I had the feeling that we had slides everywhere and it was hard to know what the current state of play was. And we've asked -- this panel has asked Edison to keep coming back and layer in additional information and insight about what defense-in-depth really means in practice, in plain English. And so thank you for putting this together and for keeping it evergreen. 06:53 06:53

MR. PALMISANO: Good. Thank you.

Radiation monitoring and reporting. Now, this is a very important topic, and there's been a lot of good dialogue with members of the public in terms of what is done currently to monitor the dry cask storage system at SONGS or what could be done -- or what could be publicly available. 06:53

So first I want to tell you what we do 06:53

currently. You've heard this before, but it's going to summarize it. Both our systems, the older system and the one that is now being filled, continuous security monitoring, 24/7, all weather conditions monitored visually and electronically. We do daily inspections of the facility, particularly in the air vents, making sure the heat removal systems are working properly. We have 24/7 radiologic monitoring in the ISFSI that's currently as we're loading fuel and moving fuel into the facility. And I'll talk more about that. 06:53 06:53 06:54

On a regular basis we perform surveys throughout the fuel transportation process. So if some of you will visit us on-site, we would load fuel in the building into the canister, weld the canister, we then move it outside and put it in the facility, we monitor radiation levels through the whole process until it's placed into the facility, then we monitor the facility. 06:54

We do temperature monitoring, as I've just talked about, biweekly we survey the lids of each of the new loaded modules to make sure the radiation shielding is performing as expected. 06:54

And I should mention that SONGS, because of the high seismic design, has a very heavily shielded system. We have more shielding than you would find elsewhere in the country on similar systems. The radiation levels at 06:54

these systems are very, very low. They do a good job of shielding the radiation. 06:55

We do regular quarterly radiation surveys. We have thermal residue volcimiters [sic]. These are basically the badges that measure the radiation exposure somebody may be exposed to. They're in hospital situations -- you'll see a radiologist or radiologist technician wear a little badge that measures radiation they're exposed to -- these are monitored all around the facility. And we read these monthly so we understand what's going on. 06:55

And we do additional surveys as needed.

DR. VICTOR: Okay.

MR. PALMISANO: Now, one thing, on permanent systems, our original 50, does not have continuous online radiation monitoring. We've surveyed all the installations in the country, and virtually nobody has continuous online monitoring. Quite frankly, because it hasn't been found to be needed. We all do periodic surveys to confirm radiation levels. There's two plants in the country -- and I happen to manage both of those plants -- in Minnesota that do have some sort of online radiation monitoring that are fed to the state of Minnesota, not publically available. Those are the only two that really have that kind of system. 06:55 06:56

So basically the way the system works today, once you've got the system loaded, you inspect it, you confirm everything's operating properly, you periodically measure radiation levels to make sure nothing's changed. 06:56

Then should an event occur -- let's go to the Midwest -- let's say a tornado rips through a power plant in the Midwest or an earthquake occurred at the North Anna Power Plant in Virginia -- should an event occur like that, you then go immediately monitor to make sure nothing has changed and nothing is damaged -- because the way these systems are designed and built so robustly, absent something affecting it, the shielding doesn't change, the radiation levels don't change. So that's what's done currently. 06:56

So there's been -- and we do provide some reports, and we've commented about the NRC's usability of their website. These reports are not very user friendly.

I covered these to some extent in one of the last meetings. We have a F report meeting [sic], what we release, either gaseous when we're operating or through liquid when we're operating, as well as now. Radiological, environmental operative report. All the nuclear plants in the country prior to operating and 06:56 06:57

throughout operations through decommissioning have to sample around the environment to see are they depositing radioactivity from plant operation or decommissioning. We have done that for years. We have years worth of data. It's all publically available. We continue to do that and will continue to do that. 06:57 06:57

Those are not very easy to read. We do link them to the SONGScommunity website, but they're not written for a general audience.

So I'm going to talk about that report again. Let me talk about the report. 06:57

So in the near term we're going to take our standard NRC reports and we're going to simplify them and post them on our website so it's written -- not to dumb them down but to make them a little more understandable of what we monitor, what we find, what the results are. So we've committed to do that. 06:57

And then in the midterm [sic] -- now we'll talk radiation monitoring. It's been proposed that we consider 24/7 realtime radiation monitoring. And there's some fair amount of interest among some members of the public. We've looked at the Safecast system. We're open to doing that. We're actually researching how we might do that. Part of the rules we're under, we need a system that's calibrated that that data can be 06:58 06:58

relied upon, these affect, to some extent, that come from NRC rules. So we're looking at what system would we put in that would meet the requirements that we're under. 06:58

And also we need to talk, quite frankly, with the state and the counties in terms -- you know, previously we've talked about the county's role in protecting the public, where people need to provide data too that is actionable. Okay? So we want to make sure we understand those stakeholders who have the formal legal responsibility to act to protect the public, what are their needs for accurate data, for timely data, and for data that's put in context. So we're busy doing all those things right now, starting with surveying what was done around the country. So in the midterm [sic], the near term, we'll clean up our reports and simplifying, but we are looking at how we can use realtime data, what frequency are reports. 06:58

The two plants in Minnesota, to give you an example, only one has actually the data report to the public that's reported by the State of Minnesota monthly. So you can look up the Prairie Island Nuclear Plant and see the daily readings next to the ISFSI on a monthly report the state posts. And the state takes the responsibility to say this is accurate data that 06:59

reflects the radiation levels. So that's partly why we need to talk to the state and talk to the counties in terms of what their needs are and their expectations are. And then we'll make our decisions in terms of what we are willing to do and work with the appropriate stakeholders for the public core interest events. 06:59 06:59

DR. VICTOR: I am confident there's going to be some comments on this.

MR. PALMISANO: Sure.

DR. VICTOR: Steve Swartz, first? 06:59

MR. SWARTZ: Yeah.

DR. VICTOR: You just -- just talk, apparently.

MR. SWARTZ: Another miracle occurs this time.

This is the third meeting I've been part of the group. And the first meeting I was very encouraged when I heard conversation regarding realtime testing, reporting and public access. Then I became a little discouraged because it wasn't even discussed at the last meeting of any degree. And now I see near term and midterm and none of those terms talk about what the public is asking for and I know what the County of Orange is asking for, and that is a realtime 24/7 monitoring that the public has asked -- so that we can see -- 07:00 07:00

DR. VICTOR: Please. 07:00

MR. STETSON: It's like someone wants to look over your shoulder -- but I do -- but that it also -- it can take away or back off the level of anxiety that you have a lot of people living on both ends of San Onofre that are -- could very much and should be concerned. So I don't -- I don't want to hear that there's only -- it's not being done anywhere else or it's being done by one or two anywhere else. This is something that I believe our community and the representatives of our communities are demanding that we find a way and we get it done, and we understand there are ways to do it. 07:00 07:01 07:01

So I don't want -- I want this to be continued and get back to us on what is going to be done to do it, not that we're considering it or thinking about it.

MR. PALMISANO: I appreciate that. Thank you. 07:01

DR. VICTOR: Can I just pile on here? I have a petition here signed by 1,640 people and change. You know, people sign a lot of things for a lot of reasons. But this is a real expression of sentiment -- exactly as Steve Swartz just outlined -- and I would think it would be really, really important to have a game plan, like I said, about what the time table would be, and when will we know the answers to the feasibility of different kinds of realtime monitoring programs. 07:02

It's going to be quite a while between now and 07:02

our next regular meeting. We'll have a meeting on extreme events this fall, planning for that's underway. We'll talk about that in a little bit. 07:02

But we certainly don't want to come back in the first quarter of 2019 and find out that we're in the same spot that we are right now. 07:02

MR. PALMISANO: And that's a fair request and a fair statement. I appreciate it. I will be happy in the next meeting to bring a game plan.

DR. VICTOR: I think even -- even -- you got a lot of things going on, but I think that even an update long before then back to the community panel saying, you know, "We heard this. There's going to be public comment about this. This is an important issue about the relationship between the communities and the plant, and here's what we're doing." So that we already have a sense well before the next meeting. I think that -- 07:02 07:03

MR. PALMISANO: We'll be glad to provide that report.

DR. VICTOR: Okay. Any other comments? 07:03

Why don't you move on.

MR. PALMISANO: Okay. Thank you.

Discharge. There's so much -- there's been a lot of discussion about liquid releases. So I wanted to kind of recap a little bit. 07:03

You know, the nuclear plant has been there for a number of years and has discharged regularly and it has been properly done in accordance with permits for a number of years. Discharges are regulated a couple of different ways. Starts with the Federal Clean Water Act. The NRC is the agency that regulates radioactive discharges. At the state, the State Water Board, and locally the San Diego Region of California Regional Water Control Board regulate non-radiological discharges. 07:03

So all waste water that -- I should mention when the plant was operating, we regularly drew cool water in from the ocean, circulated it through the plant and discharged it. Okay? We still do that today. We take water in continuously and discharge it. We only take in about two percent of what we did during operation, because most of the water during operation was used to cool the turbine generators and they're, obviously, no longer in service. 07:04

So -- so all the water we discharge is monitored for radioactivity and to assure compliance with NRC limits and EPA limits. The trace radioactivity we discharge today is about one percent of what we discharged during operation. 07:04

To give you a feel, when we look at what we 07:04

discharge, an average member of the public -- or hypothetical member of the public -- would get 0.003 milligram liter. That's a hundred thousand times what we get as individuals just living, from solar radiation, natural radiation sources -- sand gives off radiation. So our contribution to background radiation is very low. 07:04 07:04

DR. VICTOR: Yeah, go for it.

Dan, do you have --

MR. STETSON: Tom, at the last meeting there was a question about the schedule of when the discharges are and would Southern California Edison be willing to publicize when those discharges are? 07:05

MR. PALMISANO: At this point we need to talk to the San Diego Regional Water Quality Board. We're going to discharge in accordance with our NPDS permit and the NRC permits. We discharge continuously. 07:05

MR. STETSON: Okay.

MR. PALMISANO: So we're discharging as we speak. So there's not a lot that makes sense in terms of notifying you when we discharge. Now, we'll look at the future decommissioning activities and see if there's a major discharge planned. I think that's more of interest to people. 07:05

MR. STETSON: And also can you somewhat quantify the amount of volume that's going out? 07:05

MR. PALMISANO: I've got the numbers in my notes. 07:05

I believe during operation we took in and distributed about 2.5 billion gallons a day. Now we're permitted about 56 million gallons a day, and we only discharge about, half of that, about 35 million gallons 07:06 per day.

MR. STETSON: So 35 million gallons --

MR. PALMISANO: Circulates through the plant. This is water that's taken in, used to cool things, and pumped back out. 07:06

Added to that we have a sewage treatment plant that discharges. We've got sumps, you know, that collect water that discharges through that. Very little radioactivity since we're not operating. All that is included in the discharge. But the plant circulates 07:06 water continuously through the plant at this point. Much -- you know, two percent or less of what it did operationally.

DR. VICTOR: The only thing that's being cooled in the plant is the spent fuel pool; right? 07:06

MR. PALMISANO: Spent fuel pool, some air-conditioning systems for the control room and things like that.

DR. VICTOR: But when -- at the end of next year and -- you'll be done with the fuel offloading campaign 07:06

so then does the spent fuel recirculation stop? 07:06

MR. PALMISANO: Actually, spent fuel -- we put in spent fuel pool cooling islands a couple of years ago. They are no longer cooled by ocean water; they're cooled by air. So we have chiller systems. So I 07:07 should modify that. The spent fuel pool cooling systems are no longer cooled by ocean water. These are some of the air-conditioning systems in the various buildings, things like that.

Now, when we're done -- so we when finish the 07:07 spent fuel offload, we'll turn off the cooling island for the spent fuel pools, and we will still have a discharge because we have a sewage treatment plant, for example, like many municipalities do, that discharges.

DR. VICTOR: So why is there any radiological 07:07 content to the discharge?

MR. PALMISANO: Just trace radiological content. You know, tritium evaporates off the spent fuel pools. So while the spent fuel pools are in service, it's a trace amount, it evaporates and condenses and some of 07:07 the SONGS trace amount of radioactivity is discharged.

DR. VICTOR: But half life of tritium is relatively short so --

MR. PALMISANO: It's a very fairly benign radioactive isotope in that sense. 07:07

DR. VICTOR: Any other questions? Okay. 07:07

MR. PALMISANO: Okay. ISFSI warnings. There's been a lot of discussion. Let me start at the bottom.

The current system has been in service since 2003. AREVA new owned system. Canisters were found -- 07:08 2000 as a two-year warranty. Okay. The new system which has been fabricated has actually a 30-year warranty, which -- a different system, built to later standards, different materials, different treatment of materials. Included, we got a five-year extension 07:08 because we elected to peen the canisters to make them more resistent to cracking. So that warranty will begin in 2019 when all the canisters are loaded, and it extends for 30 years.

So that's the picture on the warranty. 07:08

DR. VICTOR: That wasn't the specific question.

MR. PALMISANO: Those were the follow-up items I wanted to report on today.

DR. VICTOR: I -- I guess I want to make it a point that many people have made time and time again that 07:08 there's a difference between a warranty and expected lifetime, just like I've learned there's a difference between the warranty on my Honda Civic and its expected lifetime, because the car never seems to stop. Okay?

Any other comments? Great. 07:09

So we're going to take a -- thank you very much, Tom. That was very helpful. 07:09

I think, you know, with the limits of time, we should do this more regularly, where we actually look explicitly back at the previous meeting, at some big questions that come up repeatedly and talk about them more actively, because the back and forth I think is very, very important. Okay. 07:09

We're going to take a five-minute break. And then we're going to have a public comment period. 07:09

So we're now at the break.

(A break is taken.)

DR. VICTOR: Okay. We're going to get started here.

I have been handed an announcement. And it is not that I won the lottery. It is that apparently some folks are parking in the adjacent lot of Kingdom Hall. And Kingdom Hall is having some kind of event tonight. So I guess they're going to tow your car or crush it or something like that. Apparently don't park at Kingdom Hall because there is an incredible towaway risk. You may want to move your car and park it in Albertsons, I was told. I'm not quite sure why Albertsons is thrilled about that. But I guess park it in Albertsons if your in Kingdom Hall right now and buy a pack of gum on your way out of Albertsons. But please don't park at Kingdom 07:19 07:19

Hall because apparently they're quite serious about it. 07:19

UNKNOWN SPEAKER: So it's okay if I'm --

DR. VICTOR: Just in front of here. If you're in a parking space -- there's parking spaces associated with this complex, and it doesn't say don't park here, then 07:19 I think you're fine. But you don't want to be nextdoor at Kingdom Hall.

Any other announcements about parking? Okay.

So public comment period now. A lot of folks have signed up. But I am confident we can get through 07:20 our list tonight.

First on our list is Gene Stone and then Charles Langley.

Can you please spell -- I mean, if you have a last name like Victor, where everybody knows how to 07:20 spell Victor, you don't have to spell that out. But if you can please spell your last name when you make a comment before the clock begins so that our court reporter has the benefit of getting your accurate spelling? 07:20

MR. STONE: Gene Stone. S-T-O-N-E.

Is the clock on?

First of all, I'd like say that I put some petitions, signatures, on your table tonight. We had over 1649 people sign our petition for realtime 07:20

independent radiation monitoring free and open to the public. So I want to thank everybody for signing the petition. 07:20

I also wanted to thank Tom. I think we've been negotiating, talking about this realtime radiation monitor. So I see that -- his suggestions tonight as a great first step. I'd like to be -- volunteer to be on any sort of committee in between time to discuss this. And thank you for taking steps. And I'd liked to help push you over the edge here. 07:21

So the other thing I'd like to announce is our other -- our first petition was so successful that we had to initiate another petition to the governor and the sate legislature to produce a law to mandate realtime radiation independent radiation monitor with free access to the public. So I hope to get a lot of support for that as well. 07:21

I'd liked to make an appointment with -- with you, Tom, out at SONGS again. And I'd like to invite David Victor to come along with Darren and I with guidance and go out and get a reading at each and every vent that's available at this point -- if you have 29 plus the 50. So I hope we can do that before the next meeting. 07:22

Is -- was that a yes? 07:22

MR. PALMISANO: You know, Gene, we've told you that all's well -- 07:22

MR. VERNON: Let's make the comments that we'll make. It sounds like yes is the answer but --

MR. STONE: I would like to spend the rest of my time talking about the heat. 07:22

There is a purpose, the reason why you guys monitor is because there is an NRC regulation that it can go -- only go, I think, 85 degrees above normal temperature. So it is an early warning factor -- not about a leak, but that there might be something heating up inside those canisters. And I believe that is the reason for monitoring it and how important it is. 07:22

Thank you so much.

DR. VICTOR: Thank you very much, Gene Stone. 07:23

Next is Charles Langley and then Madge Torres.

Charles Langley, the floor is yours.

MR. LANGLEY: Thank you. I'm Charles Langley.

And I enjoyed the videos on cans, with the rockets shooting cans into walls and things. But there's a difference between an empty can and a full can and, you know, one of the can examples was in Britain with two tons of water and steel bars in it. The average weight of one of these canisters, I believe, is going to be 38,000 pounds. And I believe the cans are 07:23 07:23

rated for up to 110,000 pounds. So there's a real difference between me dropping this empty can of ginger ale on the floor and dropping one that's full and one that's hot and full. 07:23

We just did an analysis on our website using proportional mathematics. And what it shows is if you take the thickness of one of these Holtec cans, it's about as thick as an egg -- but it would be an extremely heavy egg -- so it's really like just dropping a soda can or shooting a rocket into a wall. This is really heavy, heavy stuff. 07:24

I also wanted to reiterate the request for realtime radiation monitoring. This is a bGeigie Nano, and they're out with a new generation of Geiger counters that can be solar powdered and actually automatically upload radiation in realtime. 07:24

We've got a prototype that we've worked with Solarcast. And you can go to the Public Watchdogs website and get realtime radiation readings one mile away from San Onofre. 07:25

And finally, I'd like a little bit of clarity on why one would be measuring heat levels coming out of one of these containers to check for radiation. It seems the way you check for a radiation leak would be with a Geiger counter. 07:25

Thank you. 07:25

DR. VICTOR: Thank you very much for your comments.

Next is Madge --

MR. STONE: Oh, I have one more thing, Dr. Victor. I do apologize. 07:25

In the newspaper today it was announced that the Porter Ranch blowout, there actually is a way of ameliorating that. They're putting in equipment to test for gas leaks -- so there's a precedent for that -- $3 million to fund that. These things cost a couple of 07:26 thousand bucks apiece, max. This is very cheap stuff.

Thank you.

DR. VICTOR: Thank you very much for your comment.

Next is Madge Torres and then Ray Lutz.

MS. TORRES: I'm Madge Torres, T-O-R-R-E-S. I'm 07:26 with Citizen's Oversight.

I'd like to reiterate my support for realtime independent monitoring. And I think independent is key. Because there's a lot of chicanery that goes on and doesn't got caught, and there's stuff that does get 07:26 caught and doesn't get prosecuted among the people that are in charge of the regulations -- the regulators of our safety. So although it isn't a good idea for Southern California Edison to put profit above people, that's the way capitalism works. 07:26

But you -- those of you that are representing the public and also the regulators -- you're supposed to be representing me, because I'm the taxpayer, I'm the one that lives here -- so I'd like to ask that you do your job and not only support independent monitoring 24 hours a day every day, I'd like you also to get the radiation -- the cause of the radiation, the canisters, get them off the beach, even if you're just taking them to the Bluff or the Mesa across the road. 07:27 07:27

And also, I'd like to support -- I'd like to support the Helms proposal, because once the canisters get to an area where they can be monitored, the Helms proposal has a mechanism for doing that. And it's pretty simple, it's just physics, it's not like computer science. 07:27 07:28

I remember when I was in continuation class in high school we used to have to watch car crash movies -- I guess they thought that was the level of -- of mentality among the people that were placed in continuation -- but that's kind of what we were watching today, car cash movies. 07:28

And the -- the thing is that when I come here, I listen to these solutions that are just silly, like, "Yeah, we're going to have little bugs crawling up and down the canisters, little mechanical robots that can 07:28

find the radiation." And that's -- that's silly. I mean -- and Helms has something just by a change of pressure that would indicate if there were a leak. And those little mechanical insects don't even exist, just like a way to take the rods out of the defective casks doesn't exist. 07:28 07:29

DR. VICTOR: Thank you very much for your comments.

Next it's Ray Lutz and then Scott Reinhardt.

Ray Lutz, the floor is yours.

MR. LUTZ: Thank you. Ray Lutz, L-U-T-Z, Citizen's Oversight. 07:29

Basically I have two comments tonight. First of all, we talked about defense-in-depth, and it's very strange how this is looked at. They have things like planning, probably enough money, lots of meetings. Has nothing to do with can we actually recover from a problem. 07:29

Now, we learned that we're about to transfer all the waste into these canisters and then destroy the fuel pools, which was for a long time told to us as the way to deal with a cracked canister, "Oh, we'll just put it back into the pool." Now we learn that that's not even a really good idea. But maybe it would be a better idea, then, just letting a cracked canister just spew the stuff out into the environment if something bad 07:29 07:30

actually did happen. 07:30

So we need a plan of action defined -- defined plan of action, not just maybe we can figure something out -- for what to do with a cracked and leaking canister if you destroy those fuel pools. 07:30

Now, in Maine Yankee they had an additional failed canister overpack that they could put it into and seal it up. It's not a new idea. There's -- there's other plants that have said, "Yeah, we realize this is a danger, and we have to have a way to deal with it." 07:30

So you guys should have a plan. Please do that.

Next we need a fall-back plan in case all of this other stuff doesn't work out. Congress may not pass it; New Mexico, everybody revolts and maybe don't -- despite all the transportation glory we saw, 07:31 there's no way we can transport it because people are lying down on the tracks; it may not be able to be transported like that. Even if technically it could, it may not be possible. We can't leave it 100 feet from ocean. 07:31

So I ask that Camp Pendleton -- with all due respect, the mission of the military is not training; the mission of the military is to protect the nation, protect the public, protection. And we need protection from this fuel. And so I ask for this body here -- 07:31

despite you can't do anything -- very much with the leaders of these -- and especially the Camp Pendleton representative, to reach higher up into the organization of Camp Pendleton, bring people in here that are not just representatives that are on the panel, but people who may be able to pull some strings, either put it up on that Mesa or further back. I vote for about three miles in and about 1500 feet up. I don't even want it next the freeway and the rail line. That's not far enough in. There should be an option to move that fuel under the freeway and then to Camp Pendleton in a safe place. 07:31 07:31 07:32

Thank you.

DR. VICTOR: Thank you very much for your comments, Ray Lutz. 07:32

Next it's Scott Reinhardt and then Nina Bibiarz.

So we do not have Scott Reinhardt? Okay. Nina Bibiarz and then Sarah Brady.

MS. BABIARZ: Well, good evening. My name's Nina Babiarz. I'd very first like to thank -- 07:32

DR. VICTOR: B-A-B-I-A-R-Z.

MS. BABIARZ: Correct.

I'd like to thank Mr. Swartz for raising the question that he did earlier.

And Dr. Victor, I'd like to thank you for 07:33

reinforcing, you know, the 1600 and whatever people who signed that petition, because people are very passionate about this issue and the independent radiation monitoring. 07:33

I have a few questions tonight. 07:33

By Edison calculations there were four cans in the ground when there was a bolt, slash, shim problem discovered with the fifth can. The NRC then allowed the burial to resume with 30 cans that did not have the, quote, unquote, improved manufacturing process. I'm 07:33 calculating that there were, what, four or five cans, Tom, plus 30? So we've got 34, 35 cans that are going to go in the ground, and you're saying that you've got 29 buried, according to your calculations, a few minutes ago. So I'm looking at basic math. Six more cans that 07:34 don't have the improved manufacturing process that are going in the ground.

So I want to know -- and this is a question I'd like follow-up on -- what type of cans will Edison be using after those five or six cans are going to be 07:34 buried?

And my other question is: Will those next five or six cans have the, quote, unquote, improved manufacturing process or not? Question.

I have another question: Who determined what -- 07:34

what the improved manufacturing process was, and why it was needed in the first place? What defect or deficiency was identified that required it? And if it was needed and necessary, why is Edison allowed to now bury cans without the improved manufacturing process? 07:34 07:35

And I would like answers to all those questions.

Question Number 2 -- Category Number 2 question that I have is: What's the progress with that underground monitoring system that you don't have?

The reason the Public Watchdogs and many others believe this issue of independent radiation monitoring is so urgent is, Number 1, there's no underground monitoring; there should have been independent radiation monitoring before one can ever went into the ground on January 30th. And there's other reasons as well that I'll squeeze in in my last few seconds. 07:35 07:35

And that was that Edison was deceptive when they said they were going to put like-for-like replacement generators that they didn't. And what they did was a new technology that gave us a radiation leak. And that information they withheld from the public for 17 days. So Edison cannot be trusted. 07:35

We need some answers to these questions.

Thank you so much.

DR. VICTOR: Thank you so much for your comments. 07:36

Next is Sarah Brady and then Christine Gorman. 07:36

MS. BRADY: Hello. My name is Sarah Brady, S-A-R-A-H, B-R-A-D-Y. I'm a resident of Encinitas, California. I was raised there.

I want to comment on some of the presentation 07:36 tonight, which a lot of it consisted of information on transportation of spent fuel from San Onofre, for which there's a not a clear path forward, anyway, of where it would go.

I have a question to start off: What are the 07:36 specific rail and truck routes that San Onofre's waste would go through and be transported on? Would they go through San Diego or Orange County and Los Angeles?

Gary Lanthrum, on Slide 26 today you stated that 4,336 casks of spent nuclear fuel were shipped from 07:37 power plants and research reactors between 1964 and 2010. Only 1600 of those are high burnup fuel that has come from nuclear power plants. So that number is very misleading, because the majority of those transports were from research reactors, which produce lower level 07:37 radioactive waste.

The document that you cited shows -- on the same slide -- the document you cited on Slide 26 shows that so far 802 metric tons of spent nuclear fuel has been shipped from power reactors thus far. There's a total 07:38

of 79,000 metric tons of spent nuclear fuel from reactors in the U.S. Doing some basic division, 821 metric tons divided by 79,000 metric tons equals one percent of the total spent nuclear fuel in the United States is the amount that -- with your numbers, if they're correct -- has been shipped thus far. So even if your data is correct, the amount of shipments that need to happen in the future for the nuclear -- the commercial nuclear fuel across our country is 100 times greater than the shipments of power plant spent nuclear fuel that has happened since 1964. 07:38 07:38 07:38

On Slide 28 you state the accident fatality risk associated with spent nuclear fuel shipments is more than three orders of magnitude less than for some other common hazardous materials. But I would argue that because only one percent of the spent nuclear fuel that needs to be shipped has been, that -- and that that is the data that that statistic is coming from -- that that is not a fair statistic. Just because something bad hasn't happened in the future doesn't mean that something won't happen -- or something bad hasn't happened already doesn't mean that something bad won't happen in the future. 07:39 07:39

The day before Chernobyl happened, no accident like Chernobyl had happened. The day before Three Mile 07:39

Island happened, no accident like Three Mile has happened. And this data -- before Fukushima happened, no accident like Fukushima had happened. 07:39

The videotapes cited are from the '90s and they use casks that are not the same as the casks we use today. And as noted before, those were empty, not full of nuclear fuel. So I don't believe that those are an accurate source to cite. 07:39

DR. VICTOR: Thank you very much for your comments.

Christine Gorman and then Daryl Gale. 07:39

MS. GORMAN: My name is Christine Gorman, C-H-R-I-S-T-I-N-E, G-O-R-M-A-N.

Many of us were very concerned when we heard that you are just working on how you can implement a plan -- and that you won't even do it -- for getting realtime monitoring. 07:40

I would specifically like to ask that you post a progress report, at a minimum, monthly about what steps you're taking, about where there's any delays, are you trying to contact some other agency and that's where there's a delay or hangup? If you could please post that on your website frequently, because it's just too long between meetings for us to wait and come back and maybe hear again that you're working on it. So I think that would be important and probably very easy to do. 07:40 07:41

Even if you're not doing anything, post back, you know, in three of four weeks and say, "Well, I haven't done anything." 07:41

And then the other issue is on the water that's being discharged. You say it's ongoing. And the part that's a little bit too vague is, "I guess there's radioactive water mixed with other types of water," and so on, and then you mention 35 million gallons. But I would like to have something much more specific than that. How much of radioactive and similar type materials are in that water? And if you're saying that that's regulated both by the NRC and the EPA, you have numbers. Please post those numbers on your website for us to see. 07:41

Thank you. 07:41

DR. VICTOR: Thank you very much for your comments.

Next is Daryl Gale and Ramesh Jain.

Daryl Gale, the floor yours.

MS. GALE: Daryl Gale, G-A-L-E.

I want to tell you the story of So Cal Gas and the Aliso Canyon blowout, and it's completely pertinent to what we are dealing with here. 07:42

Aliso Canyon was an oil field in extreme rural northwest Los Angeles County. After all the easy-to-get-to oil was depleted, So Cal Gas acquired the 07:42

property. And then greedy, unscrupulous developers started building multimillion dollar homes right out there, directly across the street from where the So Cal -- So Cal Gas facility was turning it into a giant CH4 methane storage facility. Thousands of people bought beautiful, expensive homes, never being told they were mere feet away from a giant mountain underground gas storage. 07:42 07:42

Many of the old oil wells were improperly capped, encased -- in fact, we didn't know how to encase wells properly in the '30s and '40s -- some them were cased in leather. And because So Cal Gas didn't monitor their own property or put safety valves on the ancient oil wells, and our State of California agency, DOGGR -- that's D-O-G-G-R, Department of oil Gas and Geothermal Resources -- never ever inspected this large facility, in October of 2015 one of the 62-year-old wells blew out, sickening thousands of people, forcing them to evacuate. It spewed a hundred thousand tons of methane into our atmosphere and wasn't capped till February 2016, five months later. 07:43 07:43 07:43

Because of So Cal Gas's arrogance and lack of foresight, no protective equipment was available anywhere in California. Emergency shutoff equipment was borrowed from Texas, and it didn't work. 07:44

Today people still suffer from low-level chronic leaking methane, non-stop nausea, vomiting, headaches, lots of dead pets and daily nosebleeds. Six teachers of the school right there on the property -- it's called Porter Ranch -- have gotten cancer and two have already died. 07:44 07:44

Jerry Brown refuses to shut the facility down. We have gone up there, we have marched, we have lobbied, we have beseeched him, but he won't shut it down because his sister Catherine is on the board of Sempra Energy. 07:44

So I'm just asking everybody in front and behind to stay vigilant and don't -- and make sure you question authority.

Thank you.

DR. VICTOR: Thank you very much for your comments. 07:45

Next is Ramesh Jain, and then Tom Amabile.

MR. JAIN: Well, my name is Ramesh Jain, R-A-M-E-S-H, last name of Jain, J-A-I-N.

And briefly I do have my profession was nuclear engineering, and I have work almost 33 years on various of these plants, building nuclear systems, servicing at maintenance and decommission, just like it was on done San Onofre, that was my last specialty, replacing steam generators. 07:45

And I'm surprised. What -- if -- let me just 07:45

share this little other sentiments here. If before Fukushima somebody asked me, "What do you think of nuclear power?" I say, "It's a great way to generate electricity. We are dedicated people there." And one thing we have to think about all the time, the public safety come first. Whatever you do there, keep in mind public safety come first. And I live with all those standards and I still do. 07:45 07:46

DOE promise 1998 facility will be there, all these waste material will go there. We are talking 20 years after. 07:46

So reason I'm bringing these fact, we are talking the details of something; we are not going to the grassroot level, what has not been done, and why do you not bring those people here who promise those things, higher level people who has the money? 07:46

Come back on SONGS. Tremendous mistakes. 250 million or more replacing steam generators -- all the people are involved, professionals are involved. Big mistake, removing anti-vibration system or simply find it, plant closed down. 07:47

Now come back to these canisters. And I heard 30 years of life and all these things. Plant life is 40 years, canister life is only 30 years. And this little chart here shows 35 years of dry canister lying 07:47

somewhere else. 07:47

Nuclear power plant, the way I understand, were never designed permanently or long-term storage. Knowing the fact they were designed to keep this spent fuel temporarily and then ship it. 07:47

Now, as we can look forward for a minute, we have -- Department of Energy nor the facility in Texas, and we are start talking how to monitor this, we are getting those details, which has particularly no meaning to me. We have to go to root cause. 07:48

Please give me one more minute just --

DR. VICTOR: Not a minute. But a couple of seconds.

MR. JAIN: Okay. A couple of seconds.

Question: If these canisters here, the facility is not designed to store these canisters, what -- what program? What design you have in your hand if earthquake come and tsunami come or they come together, what you have done? How you are going to handle? This question, not of shipping, the best line there for 35 years. 07:48

DR. VICTOR: Okay. Great.

Thank you very much for you comments.

MR. JAIN: Thank you so much for listening to me and thanks for public for -- please, public safety come first. 07:48

DR. VICTOR: Thank you very much for your comments. 07:48

Next is Tom Amabile. Tom, you're going to have to help with the pronunciation of your name. I'm going with the Italian.

And then after that is Danika Carson. 07:48

MR. AMABILE: That shouldn't be Italian [sic], but it is. I pronounce it Amabile because my dad did that. And it's A-M-A-B-I-L-E.

I just wanted to thank Southern California Edison for their continued support of off-site emergency 07:49 management. I just retired from the Academy of San Diego as one of their emergency services coordinators. I was one of the ones who did planning for San Onofre. I wanted to thank Edison for the support they always gave us and just to express my hope that they continue 07:49 to do so in the future.

DR. VICTOR: Wow. Okay. Thank you.

Danika Carson. Then Ayla Breezy.

Danika Carson, the floor is yours.

MS. CARSON: My name is Danika Carson, first name 07:49 spelled D, as in delta, A-N-I-K-A, last name Carson, C-A-R-S-O-N. I was born and raised in San Diego, California. I'm a Public Watchdogs advocate.

I am in complete disbelief that an approved site that was obtained illegally is still being used. It is 07:49

completely mind-blowing. And to put the icing on the cake, you guys call it a burial site, which is completely misleading; it's really a dump. 07:49

I understand that there are tons of concerns that impact our future, but I am currently focusing on the present. Let's face it. Edison has no plan of moving the dump site anytime soon. In that case, things will remain the same, and I have major concerns. 07:50

Are emergency personnel, such as firefighters, police officers, paramedics, and possibly even the military at all prepared for a nuclear emergency? Do they know what to do? How to do it? Better yet, are they even informed about the state of our nuclear waste here in Southern California? Is there an evacuation plan in place? What does our emergency proceeds consist of? Without a plan, we are all just sitting ducks. 07:50

I feel the issue is extremely important because we have no control over Mother Nature and we are clearly every bit of unprepared for such a natural disaster. 07:50

There isn't any media coverage, any pamphlets any notices. There is nothing available to the public to keep us informed. People are moving here and purchasing property without the knowledge of the fact that there is a nuclear dump that is using thin and ineffective canisters. The canisters are entirely 07:51

unsafe. As a matter of fact, they are extremely unsafe with no monitoring. 07:51

After Southern California Edison's reputation was ruined, there should have been major changes made. One of the most important is that Edison should not be allowed to monitor the radiation leaks. They clearly have been proven to be untrustworthy. So having Edison in charge of the monitoring does not make any sense, being that the public would not be alerted of the radiation leak until hours or even days after the fact. 07:51

With the 3.6 million pounds being stored, they will outright -- it is outright deadly for the 8.5 million lives within just a 50-mile radius of the dump. It seems as though Edison does not mind killing off a portion of the population here in Southern California. I'm on the verge of believing that that may be part of the plan. 07:51

No one from Edison is working hard enough or fast enough for a rightful solution. The public has a right to know. It is not that we want realtime monitoring but that we absolutely need it. We've had our lives in the hands of Edison for far too long. We have the right to be informed and remain informed at any time we choose. 07:52

A lot of us here today have attended several 07:52

meetings, and yet there have been no useful answers to any of our questions. We need answers and we need them now. 07:52

DR. VICTOR: Thank you very much for you comments.

And there was something you said in your comments that I need to clarify by email, maybe you could just send me a copy of your comments -- because I just saw that you were reading from them -- and we can coordinate by email on that? 07:52

MS. CARSON: Okay. 07:52

DR. VICTOR: Ayla Breezy, please? And then David Fritch.

MS. BREEZY: It's Ayla, A-Y-L-A --

DR. VICTOR: Sorry.

MS. BREEZY: -- that's okay -- Breezy, B-R-E-E-Z-Y. Good evening. 07:52

So thank you for this meeting in Oceanside. It keeps moving farther south. And we appreciate you making it easier for people from San Diego.

And thank you for the follow-up topics and the slide presentation. It's nice when our concerns are heard and attempted to be alleviated. 07:52

So I'm wondering if Holtec has offered to buy Edison's nuclear waste?

And here are some transportation issues that I 07:53

see. I've heard that routes through L.A. are what 07:53
are -- have been told what will happen. And I agree the
weight of the cans are so heavy that I don't think that
the DOE has had experience transporting cans that are
filled with so much spent nuclear fuel products. 07:53
Shipping nuclear waste across the country is extremely
dangerous. We must avoid doing it twice.
We all had a very busy week with the California
State Lands Commissions hearing this is week. It was a
lot for all of us to mobilize and attend and speak up. 07:53
I found a lot of flaws in the draft EIR, and I pray that
it does not go into approval by the California Coastal
Commission. I know the panel holds an opposite opinion.
I -- I think it's going to be an extremely
hazardous demolition when hidden dangers are clear, 07:53
clean air, earth and water, no matter the attempt to
keep it contained.
So regarding the petition on change.org, we
reached 1600 signatures and 135 comments. We appreciate
you listening to us at the last meeting about realtime 07:54
radiation and you included slides. I appreciate you
being open to the continuous monitoring and looking at
possible systems and talking to counties for what their
needs are.
Thank you to Steve Swartz for talking about the 07:54

County of Orange and expressing people's anxieties and how this will help to alleviate it. 07:54

And for Chairman Victor, I appreciate you sharing information about the petition and asking for a timeline and update well before the next meeting. So I just appreciate you following up on that. We believe that this will help to ease the hearts and the minds of many people. 07:54

And on another note, I feel that taking away the monitoring outside of the air vents is extremely dangerous. That's where we need to be monitoring. 07:54

So we are all stuck in the same situation together. We don't want the waste here. We're in a stalemate with the government and legislation. The consolidated interim storage sites may or may not manifest. Because of this I strongly believe in the option to move the waste to the Mesa. 07:55

I spoke criticizing the draft EIR report for leaving this option out. I think it's a viable alternative that needs to be further looked into. 07:55

Former NRC chairman Greg Zuco -- I'm going to say it wrong -- and Tom English, nuclear engineer, agree on the latest KPBS report. So I'm going to butcher your name -- but from Camp Pendleton Tom Caughlan spoke out against the idea, but I think that with the rising sea 07:55

levels that -- should warn us that we should need to move it further back before it's too late. 07:55

So I know the idea of decommissioning the ISFSI is a projected date of 2051. I don't know where I will be in 33 years, but I hope I see it moved in my lifetime. 07:55

Thank you.

DR. VICTOR: Thank you very much.

Next is David Fritch. And then Nancy Select [sic]. 07:55

David Fritch, the floor is yours.

MR. FRITCH: Thank you. My name is David Fritch. I am a worker on the ISFSI project. I do fieldwork as -- F-R-I-T-C-H -- I'm industrial safety, so OSHA stuff, not nuclear stuff, but I'm out there. 07:56

And I may not have a job after tomorrow for what I'm about to say, but that's fine, because I made a promise to my daughter that if no one else talked about what happened Friday, that I would.

About 12:30 August 3rd we were downloading, and the canister didn't download but the rigging came all the way down. It was gross errors on the part of two individuals. 07:56

UNKNOWN SPEAKER: Can you speak up?

UNKNOWN SPEAKER: Speak up. 07:56

MR. FRITCH: There were gross errors on the part of two individuals, the operator and the rigger, that are inexplicable. 07:56

So what we have is a canister that could have fallen 18 feet. That's a bad day. That happened. 07:57

You haven't heard about it, and that's not right. My friend here is right, public safety should be first. I've been around nuclear for many years, it's not behind that gate, it's not.

Here's a few things I've observed in the three months I've been here: SCWE, the safety conscious work environment, where people are constantly given encouragement to raise concerns, it's not repeatedly or even -- I've never even received SCWE training since I've been on-site; that's not standard for a nuclear site. 07:57 07:57

Operational experience is not shared. That problem had occurred before, but it wasn't shared with the crew that was working.

We're undermanned. Don't have the proper personnel to get things done safely. It's certainly undertrained. Many of the experienced supervisors -- what we call CLSs, cask load supervisors, once they understand the project, how everything works, are often sent away and we get new ones that don't understand as 07:58 07:58

well as -- as even the craft, basic construction in craft. A lot of them that haven't been around nuclear before, performing these tasks. Not technicians, not highly training, not thorough briefs. This is an engineering problem. 07:58

What happened is inside of that cask there is a guide ring about four feet down, and it's to guide that canister down correctly to be centered in the system. Well, it actually caught that. And from what I understand, it was hanging by about a quarter-inch. 07:59

DR. VICTOR: Thank you very much for you comment.

UNKNOWN SPEAKER: Please let him continue. Let him continue.

DR. VICTOR: I'm not trying to cut him off. He stopped. It's the end of the time. So I asked -- thanked him for his comments. 07:59

MR. FRITCH: Sure, sure. I just -- I mean, obviously the point is clear, because people have said Edison's not forthright about what's going on. I'm sure they'll tell you they were going to bring this out once it was analyzed, et cetera, et cetera. I'm sure they've been preparing what they would answer if it comes out. 07:59

And I came here tonight to see if this event would be shared with the community, and I was 07:59

disappointed to see that it was not. 07:59

I want to thank the community of San Clemente. It's a beautiful, wonderful community with amazing people, they've been great to me. My family's here with me for the month. 07:59

And unless Edison and Holetec commit to defining success on this project as safety -- I'm not talking about really the concerns that were voiced today; I'm just talking about downloading, getting the fuel out of the building safely -- and -- and are we going to 08:00 address what would have happened if that canister would have fallen? Even if the shell wasn't penetrated, now will they take it in a repository site? But the question is: Will Edison and Holetec commit to defining success primarily in terms of nuclear safety? And there 08:00 will be -- will there be transparency, commitment to safety and the financial commitment to make sure that it's done successfully?

Thank you.

DR. VICTOR: Thank you very much for your comments. 08:00

UNKNOWN SPEAKER: You're my hero, dude.

DR. VICTOR: Nancy Select [sic] and then Donna Gilmore.

UNKNOWN SPEAKER: I'll withdraw my request to speak.

DR. VICTOR: Thank you. 08:00

Donna Gilmore, then Gary Headrick. 08:00

Donna Gilmore, the floor is yours.

MS. GILMORE: We have the same question every time. What are you going to do with a leaky canister? The only options are put it in the pool. We now know these 08:01 canister are being loaded so damn hot we can't do that. The only other option, as you told me on a side conversation, Tom, is a hot cell. You don't have any plans to do that. The other option you've talked about 08:01 offline and that you said is a -- some kind of an overpack cask. It -- there's no thermal analysis done for that. No one has approached the NRC to do that. We've got 15-year-old canisters here. The only plan that I know that you're actually doing is you've asked 08:01 AREVA, your vendor, to no longer have to report the radiation levels coming out of the outward air vents. The only possible reason to not share those levels is to hide them. So instead of getting public radiation monitoring, you're going behind and getting the NRC to 08:02 approve stopping measuring those radiation levels. If there's leaks in the canister, they will go out those outlet air vents. I did some research. The Edison -- NRC has already approved this for Calvert Cliffs. Their canisters are 25-years-old.

So the real plan -- you guys, everybody, the 08:02

real plan is to hide the leaks. 08:02

Southern California Edison is the company that ran the first commercial reactor in the country, Santa Susana. They bragged about that. What they don't tell you is that that reactor leaked into the community 08:02 in Simi Valley. They hid the leaks for 20 years. A student doing research at UCLA found the documents. So they have a history of hiding leaks.

The 17-day was hidden. They told us they didn't release to the public. So they have absolutely no 08:02 intention to do anything. They know these canisters can leak. And what to do they do? They buy more of them. These were not designed to last.

It's -- forgot talking about transfer. I want to know what you're going to do when those canisters 08:03 start leaking. Now we have no answers. You're -- you know, you need -- the only option is to buy a thick-walled cask, take that trust fund -- I mean, take that $4.3 billion and do it right. Get the cask so we can sleep at night, so we can live in Southern 08:03 California.

You know, the people in New Mexico, they don't want this stuff, but they're going to get it anyway, because when these canisters start leaking and exploding, that is stuff that's going to go airborne and 08:03

head inland. It's going to go everywhere. Each one of these cans is roughly a Chernobyl nuclear disaster. And they can't explode [sic]. These are pressure vessels. And there's no pressure monitoring on them. There's no pressure relief valve. The Three Mile Island cans had that. So you don't even have that on these containers. When you're loading, you know the pressure, when you put the helium in, but after that there -- there's no monitoring at all for pressure. The NRC gets exemptions for mechanical standards. 08:03 08:03 08:04

So I have a handout, if anybody didn't get it, but it's time to talk -- talk [sic] about anything else until they answer this question.

Thank you.

DR. VICTOR: Thank you very much for you comments, Donna Gilmore. 08:04

Next it's Gary Headrick and then Torgen Johnson.

Gary Headrick, the floor is yours.

MR. HEADRICK: Thank you. Gary Headrick, H-E-A-D-R-I-C-K, San Clemente Green. 08:04

And I'm just emotionally touched and honored to be here with someone who is bold enough to speak the truth to power. I appreciate that so much. And that's what got me involved. I -- I think we all heard that story before, but I just can't -- can't tell you how 08:04

important it is to have people like that and how important it is for us to listen to them. 08:05

Man, I -- just brings back memories of whistleblowers, who are heros in my mind, that told me about things that we've never heard of before. 08:05

There was the -- there's an incident where on a Thanksgiving Day -- I think it was 2011 -- a steel I-beam dropped into a spent fuel pool and could have -- it had gone straight down, it could have damaged the fuel. Instead, it just glanced off. And they went in with HAZMATs and protective measures. It was a close call. And no one would have ever heard of it. 08:05

I'm just -- this is not what I intended to speak about, but this is -- accidents do happen. We have to listen to people that are trustworthy, that really have the public's interest in mind. 08:05

And Greg Vasco, the former NRC chairman who was in charge during the Fukushima accident, he had a life changing event to understand that there's another side to this story that he had to come to grips with. And he told us just last week on KPBS that the spent fuel pool -- I mean the nuclear fuel that's being stored in these silos on the beach are likely to never move. And in his opinion he thinks the NRC does not put public safety first. I mean, that's from the top guy. And if 08:06 08:06

we don't listen to that, then maybe all we need to talk about is radiation monitoring, because we know the damn stuff's going to get into the environment. If we continue this path, we -- we need to just analyze how we're going to deal with the accident and forget about transportation and everything else. We've got to talk about different kinds of canisters, different ways of handling it, we need a hot cell on site, if there's a leaky canister that -- if we can't use a spent fuel pool to remedy that situation. I mean, we have to get realistic about what we're doing, not do a lot of wishful thinking and, you know, outdated movies about things that don't even take into account things we've learned since the '70s. You know, these are higher, hotter, heavier, you know, canisters that we're just pretending like, "Oh, this is all going to work out fine." When it doesn't, where are we all going to be? What are we going to say to our future generations and people who could have prevented this? 08:06 08:06 08:07 08:07

You know -- and I do want to thank you, our Councilmember Steven Swartz for being persistent on this stuff that -- you know, the only cure for this is prevention. And we got to listen to people that are trustworthy and not the industry. 08:07

Thank you. 08:07

DR. VICTOR: Thank you very much for your comments. 08:07

Next is Torgen Johnson and then Jeff Steinmetz.

MR. JOHNSON: Torgen Johnson, T-O-R-G-E-N J-O-H-N-S-O-N. I'm a father of four. I'm a Harvard trained urban planner in North County San Diego. 08:08

I'm going to give a quote addressing this man's comment. The prime minister, Naoto Kan, we hosted him in eight events in the United States and Japan, quote: Severe nuclear accidents happen. So plan for them, unquote. 08:08

In a recent KPBS interview with former chairman of the U.S. Nuclear Regulatory Commission, Dr. Gregory Vasco said: The spent fuel at San Onofre will be buried and left on-site indefinitely. Given the opposition in New Mexico, the Holtec Centralized Storage 08:08 Project and the technical and legal challenges of opening Yucca Mountain, it's imperative that these discussions that you're having with the public be frank and open to address the long-term consequences in environmental impacts of permanent waste storage here at 08:09 San Onofre. When we do get real with each other, you'll start to appreciate why the dangerous nature of this waste has led to the public's persistence in requesting sensible safety measures and emergency plans for leaking or exploding high-level radioactive waste canisters. 08:09

Spent fuel pools should be retained on-site because they're the only option we have for one of these accidents. The seismic and tsunami risks are far greater that what Edison's hired geologist has the told the public. The recent report presented by Dr. Mark Clegg at the 11th National Conference on Earthquake Engineering, this June of 2018, describes the offshore and onshore earthquake fault system and tsunami risk at the power plant to be far more serious than Edison's contracted geologist reported. 08:09

The reason I'm here today is -- in this public interest fight, my family was involved in a coastal access fight back in the '70s. Up in Malibu private interest fenced off the beach for miles to prevent public from having access to the beach. And when there was a fight to get an access point, they piled a whole bunch of dog crap on the access point. What we're looking at right now is we're looking like a regulated monopoly that we pay for, either as ratepayers or as tax payers, handling this waste, are dumping exactly the same thing, 1628 metric tons of the most dangerous crap in the world on a beach that my family cherishes. An accident with that waste could render these beaches inaccessible and the area around it uninhabitable forever. That's what we're talking about here. 08:09 08:10 08:10 08:11

So in short, we're asking for the suspension of the continued loading of this fuel plan until we can get sensible on-siting and containment. The public is right. You just heard it, everybody. Okay? We're right. We know it's going to be stuck here. Let's start -- Number 1, containment, get it right. Number 2, siting, get it right. 08:11 08:11

DR. VICTOR: Thank you very much for you comments.

Next is Jeff Steinmetz and then Sarah Brady, you're on the list again. I saw you reading your comments. So if you want to share fuller comments with us, I'll make sure they're part of the public record. 08:11

So Jeff Steinmetz and then Krista Gostenhofer.

MR. STEINMETZ: All right. Thank you.

My name's Jeff Steinmetz. I -- I work in the public sector and I sell software to help utilities and municipalities and counties to better manage their fleet equipment. A big part of managing that fleet equipment is to actually do preventative maintenance inspections. Okay? That helps maintain your assets, it keeps them safe, and it helps them to last longer. 08:11 08:12

So what we have with the system that's going in and the one that exists today, is one that you cannot inspect.

No other public sector is doing anything like 08:12

this. Why is it we're taking one of the most dangerous substances in the world and deciding, "Okay, we're just going to shoot the crap"? 08:12

So after what was just said here today, Tom, you got some 'splaining to do. Seriously. It's an embarrassment. 08:12

Now, talking about holding that stuff up over that space and the risk of it dropping, one of the things that was mentioned in that video -- I should say that phoney-baloney sales presentation -- was that they filled a canister up with water and a couple of steel rods and then crashed it. Well, know this: Mass times velocity equals momentum. It's simple multiplication. Okay? The density or the weight of water is one gram per cubic centimeter. The density of plutonium is 19.82. So we're looking at about a factor of 19. That's why I say that was a stupid sales presentation, because you're looking -- they're not even doing the math -- and they're expecting that all of us can't do any simple math. It's fourth grade stuff. 08:12 08:13 08:13

So now take that example that they gave you filled with water and put the real quantity of weight and fuel into it and drop it from where it was hanging. It's really ugly, Tom.

DR. VICTOR: Thank you very much for your comments. 08:14

Next is Krista Gostenhofer and then Michelle Anderson. 08:14

And can you spell your last name?

MS. GOSTENHOFER: G-O-S-T-E-N-H-O-F-E-R.

So about the last thing I wanted to do today was drive down from Orange County to come to this meeting. The sky was really dark and had a really bad color. The fires are really bad. The air was bad. I felt really ominous. But I had realize that it wasn't a nuclear accident, it wasn't a nuclear fire. So I had to come down here to see what was going on and to speak up. 08:14

Prevention is what we're trying to do. We don't want to have an incident.

In February you started loading. By the March meeting I -- my jaw dropped and it still dropped from the fact that you had loaded faulty design canisters. And then you admitted that you could not, you know, put them back in the spent fuel pool. But you knew about this since the 1990s. How in the world, Mr. Palmisano, did you approve those Holtec thin-walled canisters when you knew you couldn't inspect them, you couldn't repair them, you can't reload them back into the spent fuel pools? You have absolutely no contingency plan. 08:15 08:15

So I've looked further at the NRC documents. And I've realized that NRC regulations require that dry 08:15

storage has retrievability. And as far as I can tell, Edison is not in compliance with your dry storage license. Where is the NRC? Where are you, Mr. Palmisano? I've come to repeated meetings after that, and you haven't discussed that. What are you going to do if there's a problem with a can? 08:15 08:16

I've seen plenty of studies in NRC about chloride stress induced corrosion and cracking. They know these cans crack. I've seen studies on high burnup fuel. They know there's dangers with high burnup fuel. They know that cladding can crack. Hydride gases can be created. The temperature can go up. They are pressure -- pressure vessels. There's no pressure release valve. And you're talking about transporting these things? And you can't inspect them. You can't transport these things without seeing if that fuel is damaged. 08:16 08:16

I'm just really still trying to pick up my jaw from the March meeting. And from, you know, the fact that this stuff going in the ground a hundred feet from the ocean in an earthquake fault line, tsunami zone. I'm just -- we really would like some real answers to our concerns. 08:17

Thank you.

DR. VICTOR: Thank you for your comments. 08:17

Next is Michelle Anderson and then William Weigel, Jr. 08:17

Michelle Anderson, the floor is yours.

MS. ANDERSON: Thank you.

Thank you to each of you for being here tonight, listening to the concerns of the public. Thank you Steve Swartz and David Victor for your comments tonight. I really appreciate that you listened and you're speaking up. 08:17

I'm still in awe of the courage it took for David Fritch to say what he did and to share what he did. 08:17

According to the legendary scholar Noam Chomsky: The world is facing potential environmental catastrophe and not in the distant future. And the only community standing between humankind and catastrophe are the world's indigenous people. The Acjachemen Nation, who are the original people of land, and whose human remains were found on the SONGS site by Mr. Brock, a Bechtel engineer back in the late '60s when the site was excavated and were kept hidden from the public. Until that engineer died and his widow returned those remains, per his request, to the Acjachemen people back in 2007. They were finally reburied last year. We wouldn't all be here tonight if that man had had the courage to share 08:17 08:18 08:18

his discovery. 08:18

I'm not a descendant of the Acjachemen Nation; however, I'm here addressing each of you tonight as a fellow citizen of the earth. I'm asking you to sit consciously and ponder deeply with all of the 08:18 information and concerns brought forth by all of the individuals making public statements tonight.

We have one earth, and we are rapidly destroying it with human miscreations in the name of profit over safety. 08:19

I have to believe that we all have the same goal in mind. Ultimately none of us wants to see a nuclear disaster happen here. I think it's fairly safe to say all of this talk of safely transporting the waste is a moot point as of now since there is currently no place 08:19 to move this spent fuel to. And with all of the bureaucracy involved, it's likely going to be too late, when we cut through all the red tape of political minutiae we face.

Since I started attending these meetings years 08:19 ago, I have heard many opinions expressed. More and more people are becoming aware of this ticking time bomb and speaking out articulately, factually and with the passion of a community that sees the situation as absolutely urgent. And common sense shows us a looming 08:20

potential apocalyptic scenario. I think we all felt that tonight.

I'm absolutely for SCE being fiscally responsible and using the over $4 billion of ratepayer money by providing thicker monitorable casks, providing a hot cell on-site, realtime radiation monitor, moving the waste across the freeway and higher up away from a rapidly eroding shoreline and keeping the spent fuel pool in place until a hot cell is on-site.

I'd like to thank all the people here tonight that stood up and shared and expressed from your hearts.

And I thank you for listening.

DR. VICTOR: Thank you very much for your comments.

Next is William Weigel, Jr. and then Varaja Prema.

MR. WEIGEL: Good evening. I'm William Weigel. That's W-E-I-G-E-L. I'm a retired Air Force lawyer, judge advocate, with over 20 years of military law experience.

I'm very concerned about why our nation would put the largest privately held nuclear waste dump on a military installation. Anyone with any basic knowledge of military law knows it's unlawful to target civilians. But when you put the equivalent of a hundred Chernobyls on a military installation, the equivalent of about 700

nuclear missiles on a military installation, you've just targeted eight and a half million Californians. And I don't know of anyone in Southern California that signed any agreement to be held as hostage in the event that our nation goes to war against another nation. 08:21

And I think -- I'm bringing this to your attention because I think anyone that has any capability of moving that nuclear waste off that beach needs to do it as quickly as possible. And the only other thing I would encourage the Navy to do is to ask their targeting experts whether or not there's something they can do to harden that facility so that those five-eighths of an inch thick stainless steel, 400,000-pound canisters that are like an eggshell can withstand an attack by an enemy of this nation. 08:22

And I think the Navy owes that to the community, to the people who live here -- and also to the Marines that are on Camp Pendleton -- to answer those kinds of questions. How safe is it having all that nuclear waste so compacted, so close together? How are we going to prevent enemies of this country in the event that we go to war from attacking that particular location? And if they do so, Southern California is going to be toast. 08:22

And here we are. We're talking about safety, safety, safety. And we can see what a farce safety is. 08:23

But when you put your biggest nuclear waste dump on military installations, you're just -- it's like a fighter going into the ring and sticking his nose out and asking for someone to punch him in the face. We're asking to be punched in the face. It's the stupidest thing I have ever seen in my life. And somebody needs to held accountable for it. 08:23 08:23

Thank you.

DR. VICTOR: Thank you.

Sir, since you introduced yourself as a lawyer, if you have a legal opinion or have formulated one about how this is the legal equivalent of targeting civilians with nuclear weapons, could you share that with us just offline, that you mentioned in your comments? If you could share that with me offline, I would love to see that and be able to share that with the panel. 08:23 08:23

Varaja Prema and then Lindsey Bazett.

MS. PREMA: Good evening. Viraja, V-I-R-A-J-A, Prema, P-R-E-M-A.

I'd like to start with expressing my appreciation for this open forum of conversation in which we can all feel a safe space to speak our truth and be heard. Thank you. 08:24

I'd also like the thank fellow concerned citizen David Fritch for his share. And what moved me to tears 08:24

was him saying, "I promised my daughter I would do so." 08:24

While my two sons sit in the front lobby, I stand here thinking of what is your why? Who would you promise? Who would you want to be the highest integrity for and show up for no matter what? Even if you were 08:24 going to lose your job, even if there was going to be a loss of revenue, even if it meant humbling ourselves to say, "We don't know what to do, or we need to scratch a plan, start over"?

The enormity of what to do with spent nuclear 08:25 fuel is so profound that I'm not -- I don't think we can expect anybody to be perfect yet.

Gary Lanthrum said, "If you feel there is a safety concern, you are encouraged to raise it. This is part of the industry." Thank you. 08:25

There is much concern for legitimate reasons.

The video from the 1990s indicated a cask being used differently -- a different one than we have at San Onofre -- or proposed to get at San Onofre. The test did not include fire. That test was done 08:26 separately; they are supposed to be done together. What if there's a fire and a crash? The Baltimore Train Tunnel fire burned for five days. Temperatures reached about 1800 degrees Fahrenheit. The canisters are required to only withstand fire at 1400 degrees 08:26

Fahrenheit for one half of an hour, 30 minutes. 08:26

Shipping nuclear waste across the country is extremely dangerous. I'm happy they had success with 260 or so canisters by truck once upon a time. I'm really grateful for that. 08:26

Can we avoid doing it twice? Can we please choose the location that can withstand more of the test of time, such as move it to the Mesa as Sarah Brady mentions over and over and many and others.

Thank you for this consideration. 08:27

DR. VICTOR: Thank you very much for your comments.

Next we have Lindsey Bazett, and then our final public comment, Rich Van Every.

THE REPORTER: Good morning, panel members.

My name is Lindsey Bazett spelled B-A-Z-E-T-T. 08:27 I am a UCLA trained biologist and a mother of four healthy children residing in North County San Diego.

At the last CEP meeting in June, I shared a perspective of a young family living in southeast New Mexico that is staunchly opposed to the proposed 08:27 long-term radioactive waste repository near their home. To reiterate, they, and many other families, including from first nation Navajo and Apache tribes, do not consent to the permanent dumping of San Onofre's 40 years of radioactive waste buried underground within 08:27

their already radioactively contaminated land. 08:27

Tonight I want to share with you some background on my family, of which I am a third generation Californian, which has a longstanding history of honoring and protecting the public's access to and 08:28 preservation of the pristine coastline here on the West Coast.

In 1967 my grandfather, Oregon State Representative Sidney Bazett, introduced House Bill 1601, which would later become -- come to be known 08:28 as the Beach Bill to a legislative session with zero political support. At the soul of the bill was the imperative to ensure unrestricted public access to Oregon's pristine 362-mile coastline from development, privatization and destruction of its natural resources. 08:28 My grandfather kept this bill alive despite abandonment and retaliation by many in his party, stating: The people of this State who can only afford a tank of gas and a picnic basket have the right to spend the day with their children on the beach without having to rent a 08:29 motel room or pay a toll. Finally in June of 1967 the bill was passed and signed by Oregon's 30th governor Tom McCall who stated: No local selfish interests should be permitted, through politics or otherwise, to destroy or even impair this great birthright of our 08:29

people. 08:29

This bill became the precedent of coastal access laws here in California and throughout the nation, contributing to the creation of California's own Coastal Commission. 08:29

In the spirit of Oregon's Beach Bill, which just celebrated it's 50-year anniversary, and the memory of my grandfather Sidney Bazett, I ask you to listen to your fellow citizens and community members who are spending their free time tonight advocating for the 08:29 health, safety and unrestricted access to our pristine beaches here in San Diego and Orange County.

We are children, young adults, mothers, fathers, grandparents and your fellow Californians who have the same zest for life that you do. Please help us to 08:30 protect our California coastline from a high-level radioactive waste canister accident by suspending the current transfer of spent nuclear fuel into deficient five-eighths of an inch thick stainless steel canisters upwind of eight and a half million residents without a 08:30 viable emergency evacuation plan. And do everything possible to ensure that this beautiful birthright that we all share is preserved for all current and future generations of Californians.

Thank you. 08:30

DR. VICTOR: Thank you very much for your comments. 08:30

Last tonight is Rich Van Every.

I'm confused. What's happening here?

MR. VAN EVERY: Hi. It's me.

DR. VICTOR: Oh, hi. 08:31

MR. VAN EVERY: All right. So Van Every is two words, V-A-N, E-V-E-R-Y. I'm a native of North County, grew up here.

And I do want to acknowledge the heart-felt comments that have been made tonight. I really hope 08:31 they're landing home with you all.

This is a big deal. Tonight's a big night.

I remember coming to my first CEP meeting, the first one of this year, and hearing people complain about how nothing, not one thing, had been accomplished 08:31 or done or progressed after four years of meetings.

So I almost didn't want to come tonight. I'm like this is just a puppet show; this is just a decoy; this is like, yeah, we're going to entertain you, public, but we're not really going to do anything about 08:31 it.

Now, I'm feeling very emotional about this situation, especially after the KUSI report, saying how -- "Yeah, no, really, probably nothing's going to get done. They're just going to leave it there and let the 08:31

government try to and figure out what to do about it." 08:31
Well, an earthquake or a tsunami or some accident is imminent here. So this is really, really urgent in my heart, and I just want you guys to really feel that.
Okay. 08:32
I have no comments about the transportation issue. I feel like it shouldn't have even have made it on the -- on the -- up for consideration tonight. We need to talk about taking the money that's available now and getting these thick-walled casks going, immediately. 08:32
How's that going to happen? I don't know. Start building a hot cell next week. You have the money. I don't want to hear about -- any stories about your shareholders' profits aren't going to be, you know, happy. This is joke. 08:32
You know, I love what Donna said. Let's use that money. Let's put it to good use immediately. Let's find a way. California land -- sorry, the -- the public utilities apparently has the ability to make that happen. So this is the kind of conversation I think we 08:32
really need to shift to.
I also want to ask Edison why they shut down their cyber security. I think that that was a really faulty move. I want to understand, you know -- sorry, I lost my place here. That -- or I would like to 08:33

encourage everyone to submit a public comment to the California Lands Commission, which it's going to end at the end of this month, to give their opinion. And I really I am not in favor of that passing, and I really hope that this process is halted until it can be done right. 08:33 08:33

I want to acknowledge Torgen for everything he had to say tonight and everybody, really, but -- you know, most of all, Mr. Fritch, you're my new hero.

And I really hope you guys are going to wake up tomorrow with a different mindset on what needs to happen and how urgent the situation really is. 08:33

Thank you.

DR. VICTOR: Thank you very much for your comments.

So did you want to sign up? 08:34

MR. BEAUREGARD: I tried to.

DR. VICTOR: Well, consider yourself signed up. But you need to tell us who you are.

MR. BEAUREGARD: My name is Michael Edmond Malaumanikamahkamah Beauregard [sic]. 08:34

And I want to honor Mel Vernon and thank you for everybody who has come.

I feel very proud to be in the presence of all these earth-caring people. And I wanted to share a milai that came to me the night of Fukushima. That's a 08:34

kanikao [sic], a song, a dirge mourning for Japan. 08:35

And this -- this art came to me that night, and I just wanted to share that with you to say thank you for your concern and to recognize this is an international event. And what you do will have great 08:35 implications for the many in this affected area.

Thank you.

DR. VICTOR: Thank you very much for your comments and that dirge.

If you could share that art electronically, we 08:35 can also make it part of the official record. So thank you very much.

MR. STONE: David, could I make one last comment?

DR. VICTOR: Yeah, no. Please, because the moment we change the -- 08:35

UNKNOWN SPEAKER: Let him do it.

DR. VICTOR: Very briefly, Gene.

MR. STONE: I just want to say David is a hero. And I hope he will not be punished. I hope he has a job tomorrow. I hope that he's listened to about his 08:36 concerns for safety.

DR. VICTOR: Thank you very much for you comments.

So -- please, we, as is always the case, are beyond time. But as also is always the case, we're going to take some time to answer some questions here. 08:36

Before I turn the floor to Steve and to Dan, I want to say two things: First, can we put on the list of things that need to get discussed right now the extreme events workshop? Because a number of people raised concerns about what -- why aren't we looking at the extreme events and accidents happen -- and some of those are really important comments and some work is underway with members of the community to work on that. 08:36 08:36

But I think before we go to the other questions -- Tom, I think, you know with the limits of what you can discuss concerning operational issues and personnel issues, tell us what people need to know right now and also what the plan is to tell them more. 08:36

MR. PALMISANO: Sure.

First of all, the gentleman who brought that up -- I'm not familiar with him -- and I'll assure you I'll go back and make sure that he is protected. And he has a right to voice his concern, and that's important. So I -- I credit him with bringing up an issue. 08:37

What occurred Friday -- first of all, nothing was dropped. Okay? In downloading a canister, the canister -- and I'll bring a graphic next time, and what I'll do is I'll write a letter to the CEP that we can circulate publically so you have the facts. It's an industrial safety issue. 08:37 08:37

In downloading a canister, this -- the sealed canister has about nine-sixteenths, a half inch to nine-sixteenths, clearance to go through this ring. It's not unusual that it contacts the centering guides. Sometimes it comes to rest on the ring. It's got to be recognized, lifted off, the crane's moving slightly when we center it. That's what has to happen; that's what did not happen in an effective manner on Friday. 08:37 08:37

The two people involved -- and I won't discuss the specifics because they have rights as well -- did not recognize that the canister they were lowering hung up. And it took a matter of, you know, a number of minutes. Our monitor, Edison's monitor, recognized something was not right, brought it to the attention of the contractor doing the job. They then lifted the canister out and reset it. 08:38 08:38

The industrial safety concern for a drop would be while that canister is sitting on an edge and, let's say, wedged in the download position by lowering the slings on the crane could a drop have occurred. Okay? It appears unlikely, but you can't rule anything out. So it's an industrial safety issue in terms of a drop. 08:38

The canister itself is designed to withstand that. But that doesn't excuse it. So a serious near miss, if you will, in terms of a rigging issue. And 08:38

I'll be glad to provide more detail. 08:38

Again, what's important is, you know, the canister was safely set down within an hour of identifying the issue. No risk to the spent fuel or the public. No risk to the workers involved. An error on 08:39 the part of the crew. So me and the contractor are looking into training, proper instructions, et cetera. And I'll be glad to detail more of that in writing to that panel and let you know.

DR. VICTOR: I think it would very helpful to detail 08:39 that, not just the particular incident but also what the larger process is for detecting, not just this event, but other kinds of events, and improving worker training and -- both on the nuclear side but also on the worker safety side as well. 08:39

MR. PALMISANO: And that's why I say we pause periodically to look at what we've learned and improve our procedures, improve our training. This obviously is an issue that we clearly need to act on before we download the next canister, which we will. 08:39

But as we're going through the process, we make sure we look back at what has worked and what has not worked.

DR. VICTOR: Thank you very much.

Dan and Steve are going to put -- hand all these 08:39

questions back to folks, including Gary. 08:39

UNKNOWN SPEAKER: Why no report on that tonight? Why didn't you report on --

DR. VICTOR: Excuse me, Steve and --

UNKNOWN SPEAKER: Can you have him answer that question, though? Why didn't you report on it tonight, Tom? 08:40

DR. VICTOR: He just explained why he --

UNKNOWN SPEAKER: No, I want to know why the report didn't happen tonight, without the guy giving -- the whistleblower. That's my -- 08:40

DR. VICTOR: This is not a formal whistleblower process.

UNKNOWN SPEAKER: I just want to know why the report wasn't -- 08:40

DR. VICTOR: And --

UNKNOWN SPEAKER: Answer that question.

DR. VICTOR: Okay. Tom, briefly.

MR. PALMISANO: Fair question. There was no risk to spent fuel, no risk to the public. It was a rigging issue that leads to an industrial safety issue. It was unacceptable. 08:40

I judged we had other comments to discuss tonight, and didn't view it at the same level -- if you remember in the first meeting we talked about the shim 08:40

issue that one of the commenters brought up -- didn't rise to the level of affecting the capability of the canister. My judgment call on that. 08:40

UNKNOWN SPEAKER: That's a good report made to --

DR. VICTOR: Dan -- Dan and Steve, please. 08:40

MR. PALMISANO: The outer seal --

UNKNOWN SPEAKER: That's ridiculous.

DR. VICTOR: Please, I don't think it's helpful in a public meeting to call people ridiculous. He's explained his view as a professional -- sir, I'm speaking. 08:41

He's explained his view as a professional in this area overseeing this process and dealing with contractors, and he has also outlined for us how he's going to provide additional information back to the CEP and the public in a very timely way. And I can assure you, sir, that we will make sure that happens. 08:41

So why don't we allow some of the other questions to be addressed as well.

Gary Brown? 08:41

MR. BROWN: Is this on?

If I could just kind of make a few comments. I've served on this panel since it started. So I've been here all four years. I'm a little disappointed in tonight's meeting, because I -- the bottom line, I -- I 08:41

don't -- we are kind of a reflection, a sounding board of the community, and I don't feel we're keeping up. I don't think our answers are keeping up with the questions. 08:41

I -- I think that -- you know, several meetings ago I asked for maybe a defense-in-depth two. You know, we had one several years ago and it seemed like a lot of questions are based on that. And yet we haven't had it. It's been a heading on our meetings, but -- a good example tonight as part of my frustration, I'm feeling is -- and all respect to Tom and what he's trying to do, there's a lot of stuff to cover -- but tonight after our transportation discussion, he covered -- Tom got back up and covered six very important issues in five minutes. And he might as well have not done it, because I don't think anybody learned anything. And he's covering -- you know, we say there's an issue, we put it on, and we talk about it for a very short period of time. But I don't think we're -- tonight we didn't give -- do justice to any of those issues. 08:42 08:42 08:43

And -- you know, I -- I would suggest that maybe we reconsider, reassess how we're doing these presentations and -- and because I do, I feel that -- you know, Donna's been saying the same thing for a long time, others have. And I don't think we're adequately 08:43

keeping up with answers and/or if we are a sounding board for the public, then I think we need to be a little responsive to the public. 08:43

We -- we talked about -- briefly about Gene Stone's petition. It was kind of -- I got all those emails. It was kind of a two-part petition. It talked about certainly lifetime [sic] monitoring, but it talked about a symposium at some point that the public would be invited to and we can learn more specifically. Now, we didn't even talk about that tonight, but that's okay. I would like at least somebody to tell me that Edison's going to consider that. And if not, then, you know, maybe UCI can do it. 08:43 08:44

That -- I went to a seminar five or six years ago after we had cooling rod problems. And they put on a seminar that's -- that was standing room only. And so, you know, there's other alternatives. But I would like to see us get our meetings here, become a little more robust in dealing with the concerns and dealing with -- and maybe rearranging the schedule so we can better adequately answer the questions from our perspective or Edison's perspective. 08:44 08:44

DR. VICTOR: Okay. Thank you.

MR. BROWN: I'm done. But --

DR. VICTOR: No, no, that's a fair comment. 08:44

Let me just ask Tom. I'm really -- I need to get Dan and Steve to actually put some of the questions in the spirit of Gary's comments back to folks, including Gary. 08:45

But I just want to say back to this Gary, that's fair criticism. Let's have some discussion initially offline about format and balance. I'll take responsibility for telling Tom not to put the six questions in the front part of his presentation, because I thought it would be useful to hear in a little more detail from Gary the main topic of tonight's presentation. And so that was in error. And people wanted those six items to be earlier and squeeze Gary's time -- Gary Lanthrum's time, then that's helpful feedback. So we don't -- so we are as responsive as possible. 08:45

I guess Steve and Dan, within the limits of time -- which I don't actually know what they are since we're already 15 minutes over -- can you put a few of the questions back to the folks here? 08:45

MR. STETSON: Sure. I'll start.

But first I really want to touch on the State Lands meeting that just happened.

You asked me earlier, and so I think that I'd like to remind everyone that the State Lands Commission 08:46

just had those two public hearing meetings. And if you're still interested in making a comment, you could do that either through email or in writing -- you have till the end of the month -- you can -- they were specifically looking for elements that may be shortcomings in the plan that was put out. Also if there are any concerns regarding mitigation, you can address those as well. 08:46 08:46

So now a quick question: Tom, you mentioned --

UNKNOWN SPEAKER: 28th. It's not the end of the month. The deadline's the 28th. 08:46

MR. STETSON: Thank you. August 28th is the deadline. Okay. Thank you.

You mentioned that the canister did not fall. If it did fall -- this is really in reference to Donna and -- well, we know that it's designed not to crack or if there is -- if there had been a leak, what would you -- what would you have done? 08:46

MR. PALMISANO: Well, first of all, like you said, the canister did not fall. The canister is designed and analyzed for a fall from approximately 25 feet. So the canister would not have been breached. 08:47

Now, let's -- hypothetically had a leak occurred -- if any canister's damaged, you immediately do a radiation survey to detect is there any radiation 08:47

or radioactive material being released. Then you notify the appropriate authorities, if there -- radioactive material is being released, which would be the NRC and Orange County via the state so they can determine any protective actions. Then you decide how to isolate it as best can you from the environment. And then typically -- again, as opposed to an operating reactor, which is high temperatures and pressures and all of the emergency plans are driven around that -- or a Fukushima situation where you have high decay heats in a reactor -- typically the contents of a canister are much lower energy, temperature and pressure. You've got time to plan how you isolate it, ensure the public is protected and decide what the best course of action is. 08:47 08:47 08:47

DR. VICTOR: And people have said tonight that the only option was a hot cell or the only option was a spent fuel pool. My understanding is that the main option would be to put it into a transport cask. 08:48

MR. PALMISANO: Well a transport cask, some kind of -- we're coming up on Maine Yankee. I'm very familiar with them. We've work with the Yankee group all the time. They actually bought a canister or cask that they could put a damaged canister in. They haven't had to use it; it hasn't been licensed. We're looking at the same thing for each -- for canister 08:48 08:48

designs.

DR. VICTOR: Okay. Thank you.

UNKNOWN SPEAKER: How about --

DR. VICTOR: Please.

Steve -- please. 08:48

UNKNOWN SPEAKER: -- these canisters --

DR. VICTOR: Steve Swartz, please?

MR. SWARTZ: Has Holtec offered to buy the waste from San Onofre?

MR. PALMISANO: I'm sorry, I couldn't hear your comments. 08:48

DR. VICTOR: The question is whether Holtech has offered to, in effect, do what they're doing at other plants, which is to take title to the spent fuel and the decommissioning of the plant. 08:49

MR. PALMISANO: No, they have not for San Onofre.

MR. STETSON: Gary, there were a couple of comments with reference to the applicability of the tests that were run as they relate to the canisters that are in place at SONGS. Could you -- with reference to being full or empty, could you make some comments on that? Further explain that, please? 08:49

MR. LANTHRUM: Sure. As I tried to indicate during the presentation, the tests weren't to demonstrate the function of the cask; the tests were to demonstrate the 08:49

accuracy and modeling. Some modeling was done on the casks as they were tested. They were looking at whether or not the models were accurately predicting the outcome for the test conditions. The purpose was to develop models and improve models for further designs and further applications. So the test wasn't intended to be an exact replication of an actual shipment; it was designed to benchmark the models that were used. And the models were adjusted based on the test results and to have more accurate models. That was the whole purpose of the testing program. 08:49 08:49 08:50 08:50

UNKNOWN SPEAKER: Now, you talked about --

DR. VICTOR: Excuse me, sir.

Steve Swartz -- sir. Sir. The purpose of the -- as he's just explained, the purpose of test was to help validate the model. 08:50

UNKNOWN SPEAKER: I know. But it's a joke. I think the forum is a joke. He already said it was a joke.

DR. VICTOR: Okay. Steve Swartz, please?

MR. SWARTZ: Yeah. They want to know what are the plans should we have problems on the site, and in regards to if there's an accident, do you have -- is there an emergency preparedness, personnel already in place who know what they're going to do? 08:50

MR. PALMISANO: Yes, the site does have an emergency 08:51

plan. It was changed back in 2015 from an operating reactor plan to a decommissioning plant plan. The plan has criteria -- again, this is one a ten-second or a 30-second answer isn't going to be sufficient -- I'll be glad to bring in a topic, explain -- the plan basically monitors today the spent fuel pools and the ISFSI for radioactivity release and a radiation event, and has criteria, at which point the NRC and the state and county are notified so they can determine the protective actions for the local population. That's how the plans are set up today. And they are in effect. The site is staffed 24 hours a day with people with that responsibility, to respond if something were to damage the ISFSI or the spent fuel. 08:51 08:51 08:51

DR. VICTOR: Those questions came up in particular in comments from Ramesh and Danika and many of -- they and others have the same question. They can send it in to this, you know, address or me. Let's make sure we get, folks, pinned sites onto the website where this information -- is this related to the point Gary Brown just raised earlier about defense-in-depth. And the whole idea was to create this evergreen, growing and send information on what defense-in-depth really means. But clearly somehow that is not working and getting that information out. 08:52 08:52

Marni Magda, did you want to comment on this? 08:52

MS. MAGDA: I'm not sure if it is appropriate. I'm just concerned that so many people mention moving the fuel to the Mesa. And so I wanted to make sure -- we just have the Cleveland Forest fire right now. And I 08:52 just wanted to make sure that everyone understands that the other side of the Mesa has already had fire come and destroy buildings on that side of the Mesa. And it's also had flooding take out buildings on that side of the Mesa. So when you want to move fuel to the 08:53 other side, you are not finding a safer place for it.

DR. VICTOR: So --

UNKNOWN SPEAKER: Yeah, you build it --

DR. VICTOR: Thank you very much.

I want to ask -- 08:53

UNKNOWN SPEAKER: -- above-ground storage.

DR. VICTOR: Excuse me. Can I ask Tom Caughlan, who is the representative from Camp Pendleton and it's their land to comment on this?

In addition, Tom, some comments were made 08:53 tonight to the effect that you were not plugged in to decision-making on Camp Pendleton. So I don't know to what degree you want to respond to that. But in past meetings you've made a variety of comments about what the Navy is actually planning here, whether the Mesa 08:53

site is open for becoming a spent fuel storage site. So maybe you can comment very briefly about that. 08:53

MR. CAUGHLAN: You've got several things at work here. First, about four months ago the Assistant Commandant -- the Deputy Commandant of the Marine Corps for Installations and Chief General Counsel for the Marine Corps sent two letters, one to the Nuclear Regulatory Commission to advocate for removal of the fuel rods as quick -- all the fuel off-site as quickly as possible, that the Marine Corps position was do it safely, do it quickly, and remove the fuel permanently. 08:54

Where the fuel is stored on-site is the decision of the NRC, and Marine Corps, as part of the executive branch of the government has responsibilities to do Marine Corps things and not a whole lot of technical expertise on nuclear things, certainly not nuclear power generation things. Nuclear defense things, sure. That's decontamination, that's a different thing entirely. 08:54

But in terms of where the site -- where that fuel goes, we rely upon the expertise of the Nuclear Regulatory Commission to say what is safe, what is technically possible, what is good science, and how we can get it out of here as quickly as possible. The Marine Corps position is get it out of here as quickly 08:55

as possible. 08:55

Now, the next thing I've heard several times is what about the security issue. The other letter went to Southern California Edison for a detailed review, both unclassified and classified, of the scenarios that we -- 08:55 that you might have to deal with in terms of on-site response, emergency -- response to an emergency that might occur to the deactivated decommissioned SONGS plant, including the on-site storage as is currently envisaged. I think that -- 08:55

DR. VICTOR: Thank you.

MR. CAUGHLAN: Does that get it?

DR. VICTOR: Thank you very much.

Steve and Dan, other major questions that need to be addressed tonight? There's a lot that are going 08:56 to have to be addressed after tonight. And I want to say a few words at the end.

MR. STETSON: Tom, there were a couple of questions with reference to monitoring the heat as well. I wondered if you wanted to comment on that now, and 08:56 maybe that could be something --

MR. PALMISANO: Well, just let me clear one thing up. On my slide I talk about monitoring the ISFSI in general from a security standpoint, ventilation and heat standpoint and radiation standpoint. Monitoring 08:56

the temperature does -- nothing to do with monitoring for a crack or release of radioactivity. So whoever made that comment, if my slide was unclear or my statement unclear, I wanted to make sure everybody understands it. 08:56

You monitor temperatures to make sure the heat is being removed from the canister. You monitor radiation and radioactive contamination to make sure the canisters are intact and not leaking something. And then in the future we'll do the inspections to make sure there are no cracks forming or through the wall, even if it's not releasing radioactivity. So it's a complicated issue. The temperature monitoring is not done to look for radiation leaks. That's probably the biggest thing I want to clear up. 08:56 08:57

MR. SWARTZ: Yeah, the last one I've got is that -- someone indicated that the regulations require dry storage to be able to be retrieved, and these don't have that capability. So are you in violation of regulations? 08:57

MR. PALMISANO: So again, this is one that warrants a longer-term discussion. The original licenses or certificates retrieved -- retrievability.

Now, at the last meeting when we talked about unloading -- or the first meeting of the quarter where I 08:57

talked about the shim issue and unloading a canister, I may have confused the issue. I was not aware at the time that anybody had unloaded a canister. We have found one site that has an overbolted canister. It is a similar process to a welded canister. Okay? And so it can be done. It's done typically in a spent fuel pool. So the NRC has changed their view of things in their continued storage rule, which I'll be glad to bring in and discuss more thoroughly. The NRC does not require decommissioning plants to maintain spent fuel pools even with dry cask storage. And I can refer you to David Lochbaum of the Union of Concerned Scientists who will tell you a spent fuel pool is not needed for an ISFSI-only or decommissioned site. 08:57 08:58 08:58

Now, this warrants a broader discussion where there's a chance for good dialogue and discussion on this. 08:58

We're in compliance today. What AREVA is doing on one of the old licenses for our older system is cleaning up some of these requirements that NRC no longer insists upon. I think that's where the comment came -- 08:58

UNKNOWN SPEAKER: That is a lie, Tom.

UNKNOWN SPEAKER: Stop lying. Please stop lying.

DR. VICTOR: Please. Please. Please. 08:58

UNKNOWN SPEAKER: Item 8 on your certificate of approval requires the ability to unload back in the pool. That license is captive now. That -- 08:58

MR. PALMISANO: I agree with that. And as per AREVA's -- 08:59

UNKNOWN SPEAKER: You're just -- get an exemption after you get the fuel out of the --

DR. VICTOR: Donna.

UNKNOWN SPEAKER: -- that's great.

DR. VICTOR: Let me suggest that there's a constructive way to -- 08:59

UNKNOWN SPEAKER: No, when we had no opportunity --

DR. VICTOR: Let me suggest there's a constructive way to handle this, which is why don't you send me a letter with -- that -- your concerns -- 08:59

UNKNOWN SPEAKER: Because the people here are not going to know the truth.

DR. VICTOR: Then we'll discuss it publically. We'll discuss it publically and --

UNKNOWN SPEAKER: They won't be here next time because -- 08:59

DR. VICTOR: Well, actually, let me make a proposal just inspired by Gary Brown's comments earlier, which is it may well be that we should have our next meeting not on a topic, but that we instead should have our 08:59

next meeting on the eight or nine things that keep coming up, for which there's a range of views. And some people think those questions have been answered, other people don't. So we'll have a much more sustained focused conversation that's not on a particular theme. And that could be a constructive thing for us to do. 08:59 08:59

I will welcome comments from the panel members, comments from the public about whether that's a good idea or a bad idea. So please send them in to me so that we can have a structured conversation with -- 09:00

UNKNOWN SPEAKER: May I answer that?

DR. VICTOR: Just a second.

UNKNOWN SPEAKER: Because it might shift the public comment period if in the future active forum per topic -- 09:00

DR. VICTOR: This --

UNKNOWN SPEAKER: -- we should talk back and forth with you guys instead of --

DR. VICTOR: I understand. 09:00

UNKNOWN SPEAKER: Excuse me. Engage the community and --

DR. VICTOR: Okay. I need to put two questions to Gary Lanthrum. It's --

UNKNOWN SPEAKER: It's only constructive for 09:00

Southern California Edison. It is not in any way constructive for --

DR. VICTOR: I understand. I --

UNKNOWN SPEAKER: No.

DR. VICTOR: -- understand the sentiment, sir. I understand the sentiment. 09:00

Gary, I want to ask just two questions to you that came up tonight that I think are very important while we have your expertise here. One of them is a question that is about whether the record of spent nuclear fuel shipments is misleading because basically a tiny fraction, maybe one percent, of that fuel has been moved and the rest of it remains to be shipped. And the other question is about the hazard analysis that you showed, about whether that is based on historical record, because if one bases everything on historical record, that's not a real representation of the real hazards. So I want you to say a couple of more sentences about how that kind of hazard analysis gets done, is it just calibrated from the historical record or if it's based on a larger fault analysis. 09:00 09:00 09:01

MR. LANTHRUM: The -- the hazard analysis is not done just on the historical records of accidents that have happened; it's done on the analytical work about what the consequences of a hypothetical accident are. 09:01

The NRC requires that for spent fuel transport, unlike other hazardous materials, you have to analyze for severe hypothetical accidents, not just for normal conditions of transport. So even though a small portion of fuel has been shipped, the analysis has been done both for high burnup fuels and other fuels for a severe hypothetical accidents. And so there is coverage for the full range of material that needs to be shipped within the constructs of the regulatory frame. 09:01 09:01

DR. VICTOR: Okay. Thank you very much. 09:01

MR. LANTHRUM: So it's not just based on what has happened to date.

DR. VICTOR: So I want to close by just commenting on two efforts that are under way right now that didn't get as much attention tonight as they should have. 09:02

One of them is that there has been a petition and a lot of very important discussions in the communities about extreme events, these extreme hazards, with a whole range of types: What are the worst things that could happen? What would be the impacts? What are the remediations and so on. That's a very important conversation. That conversation is now taking shape. We had a meeting planned earlier this week that got rescheduled because some folks needed more time to gather documents. It's now looking like it's going to 09:02 09:02

happen in October, the planning meeting. And there will be a workshop that the CEP sponsors this fall on exactly this topic so that we can look at extreme events, including public comment and structured -- some structured interaction and dialogue and so on. So that's the agenda that we're working on. We have made a special point of inviting several members of the community who have been organized around this in various ways to help with the planning of that workshop. And that process just takes a little bit longer. But I think it's really important, because it's one of the different ways of engaging the community. 09:02 09:02 09:03

Related to that meeting agenda is going to be some discussion around radiation, radiation effects, which is part of the petition that Gene Stone and others have been involved with. And that relates to the other activity that underway, which is realtime monitoring. 09:03

This is very, very important. A bunch of us are spending a lot of time on this. We have put a lot of pressure on Edison to be responsive about this and to come up with a game plan. Clearly this is going to be far beyond what the law requires them to do. And I think it's important that they be responsive to the public in that domain. And a lot of people made a lot of comments about that tonight. 09:03 09:03

I do want to underscore that if and how this is done, it has to be done in a way that makes scientific sense and has integrity to it. So we have to be a little careful it just doesn't come across as a bGeigie advertising campaign, "I had a great time, sorry, my bGeigie, and other people have them," and so on. My guess is that the requirement for calibrated instruments and -- and audible data will mean they're going to be using different kinds of technologies. So let's go into the conversation with an open mind about how we create realtime information available to the public that's credible -- is the key standard -- and be mindful that the standard that is going to be applied by the people in the industry, including Tom Palmisano and his colleagues at Edison, is going to be a standard of industrial-grade equipment, which includes the capacity to audit, the capacity to calibrate instruments and so on. 09:03 09:03 09:04 09:04 09:04

So that's very important. We have to be mindful of everyone's different perspectives on this as that conversation unfolds, because we can easily talk past each another and that would not be a constructive thing to do. 09:04

I want to apologize profusely for running 35 minutes over tonight. But we've got a lot of 09:04

important things that have been raised. And clearly one of the messages tonight is we've got to find a way to have an even fuller discussion on some of these questions in addition to topics. And so I would welcome your feedback, not just in the substance of what Edison should be looking at but also in looking a the process. 09:04 09:05

UNKNOWN SPEAKER: What you need --

DR. VICTOR: And with that, I urge you to drive safely as you go home.

(The proceedings ended at 9:05 p.m.) 09:05

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The undersigned Certified Shorthand Reporter of the State of California does hereby certify:

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IN WITNESS WHEREOF, I hereby subscribe my name this 25th day of August, 2018.

Heidi Hummel-Grant

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