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>> Thank you everyone for being here today. This is a Nuclear Regulatory I Meeting. This is going to be about RAIs and having to do with a regenerating station, specifically a working level meeting to allow engineers from Southern California Edison and folks from the NRC engineering to talk about the staff's review of Southern California Edison's response to the Confirmatory Action Letter. The Confirmatory Action Letter was sent by the NRC to the Southern California Edison back on March 27th of this year. Southern California Edison responded with a letter of their own October 3rd. From that exchange came what is called the RAIs, or Requests for Additional Information. Approximately 31 of them. So this meeting today is a discussion about clarifying those RAIs and have some discussion back and forth. Additionally, you're going to hear some discussion, and that's the primary purpose of this meeting, additionally you're going to hear some discussion today from Southern California Edison about proposed Return to Service and Operational Assessments. Don't confuse that to any determination has been made by the agency about a start up date, or anything like that. This meeting is about Unit 2, not about Unit 3. So that's basically the purpose of the meeting. Before we get too much

further I want you to double check your cell phones to make sure they're on silent or mute, or whatever you want to call it. Anything that buzzes or hums. And while you're doing that, I'm going to ask you to stand with me, stand up and I'd like us to observe a moment of silence, in thinking about what happened this past Friday. I know this is an important meeting, but guess what gang, there are things that are more important. And the tragedy that happened in Newtown Connecticut this past Friday, the flags as you can see are still at half- mast. This is a final day of mourning so I will appreciate you taking a moment of silence. Thank you. Have a seat.

So my name is, Rick Daniel, I'm going to be your facilitator today and I'm being assisted by Lynn Finch over here. Lynn's going to do all of the things I don't know how to do. She's very special because she's going to be taking your questions in the audience. Do we have member of the public, or the news media here with us today? I ask that you show your hand. Could you introduce yourself? Ma'am.

>> Elaine [inaudible].

>> Thank you. Anyone else? All right. Thank you. And we want to welcome you folks on the phone as well, there are two bridges lines. We have a NRC person on one bridge line who is going to be conversing and having some of the discussion with us. I think that's Ben Parks, right Doug? And let me put this

meeting in context for all of you in layman's terms, and not just for you folks, but for the folks watching at home, or on the internet. So, this Confirmatory Action Letter was done by the agency, the NRC march 27th. Shortly after that there, there were public meetings held out in Southern California where we had members of the public, I think June 18th was one of the first meetings. The AIT meeting. The AIT meeting, the exit meeting. And then we had a meeting about 900 and some people on October 9th and we recently had another meeting out there involving the public, November 30th. And now, we're having this meeting. So the difference between those meetings and this one is those were meetings involving the public where we listened to what public had to say, it was very important and the other side of the coin, it's important for this agency to be transparent and talk about what we know and be open and transparent. And so in keeping with that tone we've allowed 30 minutes at the end of this meeting for the public to ask their questions and I'm going to ask the public to stay focused on the subject this meeting. That would be these RAIs, the request for additional information. If we start to deviate from that I'm going to redirect you and keep you on topic because time of the essence.

The meeting's scheduled to go to 4:00, if we need to go a little later, we'll do that. Let's see. We're going to have

an open dialog between the regulator Southern California Edison and the NRC. Format. Basically, Southern California, when they get introduced, they're going to go through these RAIs according to what's important to them. Is that right, Tom? There's going to be a priority to them?

>> That is correct.

>> The most crucial ones are going to be discussed up- front and as time goes on, we'll get to the lesser ones. So the question period will beyond that, somewhere along the line we're going to take a break. We'll find a time that's right and we'll take a break. It will only be like a 7 or 8 minute break. It won't be very long, and then we're going to get back into it.

For those folks on the phone in the event we don't get to your question, or you have a question or comment outside the scope of this meeting. There are what are called NRC Public Feedback forms and they're on the website so you can access those forms, fill it out and then mail it into the NRC. At some point in the future we hope it can be interactive.

Looking down the road beyond this meeting there is tentatively scheduled meeting for mid- February.

It's a public meeting out in Southern California. Beautiful Southern California. So that's a chance for the public to get involved again and then, that's going to be February 15th, earliest. It won't be any earlier, it might

be a little bit later. And there may be other technical meetings after this one as well, working level meetings.

Let's see, if there's any proprietary information to be discussed, that will not be open to the public. That will be reserved to be discussed behind closed doors. I don't think we have anything that I know of, of that nature. So I'm going to introduce Mr. Dan Dorman. Dan is a Deputy Office Director for Engineering and Corporate Support in a Nuclear Reactor Regulation Office. Dan.

>> Thank you, Rick, and thank you everyone for being here. As Rick indicated by name is Dan Dorman, I'm the Deputy Director in the Nuclear Reactor Regulation and I also want to acknowledge my counterpart from region 4 are here, who has come up from Arlington, Texas for this meeting. I have other obligations this afternoon, but there are several of our division directors who are also present for this meeting. But I want to focus the discussion this morning, or excuse me this afternoon will be at the technical level and we have several of our technical experts in for the areas implicated by the licensing proposal who are here at the table as well as a number of other staff who are actively engaged in the staff's review are here in the room, and I think as Rick indicated this meeting is important step in the staff's evaluation of the of the licenses October 3rd CAL Response and Return to Service Plan. Our

mission to ensure protection of public health and safety and the environment and in support of this mission, the NRC staff has initiated a full review and evaluation of Southern California Edison's proposal including the restrictions on power level, period of operation and the additional defense depth that Southern California has proposed. Licenses have proposed these measures as a result of the unusual and unprecedented wear of several steam generator tubes in Unit 3 which resulted in the tube leak last January. But our focus today is on Unit 2. And on the licenses proposal to operate Unit 2 to produce power for a limited time before conducting additional tube inspections. In the early stage of its review the staff has identified a number of areas where we need additional information to more fully understand the technical basis for the adequacy of the proposed operations and to be able to make a determination whether the proposal provides reasonable assurance for the protection of the public and the environment. And these questions have been provided to the licenses before this meeting. The focus of this meeting to ensure clarity in the staff's questions such that the licensee will be able to provide staff necessary to make the determination. The NRC is looking forward to the SE's presentation concerning how you plan to respond to our Request for Additional Information and we're here today to

discuss the questions and your planned response is to make sure that we have a common understanding of the information that we need to continue our review.

But before we delve into these issues I want to provide the broader context in which today's meeting takes place. In addition to this technical evaluation the staff is conducting additional inspections related to the October 3rd CAL Return to Service Plan for Unit 2. We will document our conclusions from both the technical evaluation and the inspections and those conclusions will form the basis for an agency decisions on the proposed restart of Unit 2. And these documents, the technical evaluation and the inspection report will be publically available before a final determination is made. The NRC will take whatever time is needed to determine the appropriate actions to insured adequate protection of the public. We will not allow the plant to restart until we are satisfied that plant operation will propose no undo risk to public health and safety. And now, out this process we will continue our efforts that Rick has touched on to communicate the status of our actions to the public. Today's meeting is only one step in a long process and a final decision on whether S.O.N.G.S. Unit 2 can restart is expected to take several more months. Last week we posted additional information on our S.O.N.G.S.'s website that describes the next step in this

process and identifies expected milestones that would lead up to a decision concerning whether Unit 2 should be allowed to restart. I want to emphasize that the schedule provided on the website is only an estimate and it's offered to promote an understanding of what the key events are that will occur as the NRC conducts its independent review. We've not established any deadline for our decision. That completes my opening remarks and I'll turn it back to Rick.

>> Thank you, Dan. By the way the slides that are being shown here and the slides in the Southern California presentation, the Southern California Edison presentation that you're going to be seeing are available in the S.O.N.G.S.'s website, for you folks that are watching this via the web.

>> That's the NRC S.O.N.G.S.'s website.

>> I'm sorry, the NRC S.O.N.G.S.'s website. Thank you a very much, Doug.

Tom Palmisano Southern California Edison Vice President of Engineering for Projects and Site Support, you're going to give us a brief presentation and then we're going to get into the RAIs. Correct, Tom?

>> That is correct.

>> Okay, go right ahead.

>> Thank you, Rick. As Rick as said I'm Tom Palmisano Vice President of Engineering Projects and Site Support for the San

Onofre Nuclear Plant. And first of all I would like to thank the NRC for hosting these public meetings so we can continue our review process and Request for Additional Information that you have proposed and are finalizing and we're looking forward to today's discussion to clarify those. Before we start on the presentation, let me just reiterate our commitment on behalf of Southern California Edison. We are committed to operating the San Onofre Nuclear Plant safely and reliably to the highest standards to protect the health and safety of our public and our employees. We take that commitment very seriously and I know many of you have followed the events that have occurred with the steam generators and have seen that we have taken a very deliberate, conservative approach to restart of Unit 2, to ensure a full understanding of the mechanism that occurred in Unit 3 with the steam generator tube. We have assembled a world class team with diverse expertise to help us both ensure that we understand the phenomenon to develop the connective actions that have proposed in our confirmatory action letter response and to critically challenge us to assure that we're being appropriately conservative and we have the appropriate margins built into our corrective actions To ensure public health and safety and of our employees. We have committed and we are firm on this, we will not restart either Unit 2, or Unit 3 until both we and the NRC are satisfied that it's safe to do

so. We have submitted the cal response for Unit 2. We believe our corrective actions are appropriate, are conservative and ensure health and safety of the public and employees and we look forward to today's step in the process better clarify the questions that you have proposed and make sure that we understand them as we prepare over the next several week to provide our formal answers those questions. So we are looking forward to today's discussion.

>> Tom would you be so kind as to have your folks introduce themselves and I'm going to ask the NRC folks to do the same.

>> Sure. We'll introduce our team first. Mike, go ahead.

>> Hi, my name is Michael Short and I am a member of this Steam Generator Recovery Team.

>> I'm John Brayback, I'm the manager of the Steam Generator Recovery Team at the S.O.N.G.S.'s Plant.

>> Good afternoon, Richard Sanon. I'm the Director of Emergency Affairs and Planning at the San Onofre facility.

>> My name is Randy Hall I'm the Project Manager at the Office of the Nuclear Reactor Regulation for NRC.

>> My name is Doug Broadis. I'm the Branch Chief for the S.O.N.G.S. Special Projects Branch in the Office of Nuclear Reactor Regulation.

>> Ken Kalwaski, Senior Level Advisor for Steam Generators.

>> Emmett Murphy, NR Division of Engineering.

>> My name is Karl Thurston I'm a Reactor Systems Engineer in the Office of Research.

>> Thank you, gentlemen. Go ahead, Tom.

>> Okay. Again to reiterate, we look forward to today's discussion and at the point let me turn it over to John Brayback our team leader and he will take the meeting from here.

>> Thank you, Tom, and good afternoon everyone. I'm John Brayback, and I'm the Manager of the S.O.N.G.S. Steam Generator Recovery Project. We're pleased to have an opportunity to discuss with the NRC staff to Request for Additional Information that Southern California Edison has received in draft form since submitting our confirmatory action letter response on October 3rd. We know the NRC staff's been carefully evaluating our technical documentations since the CAL response was submitted and that's evidence by information for request that we're here to discuss today. Before we begin the RAI dialog we'd like to provide an overview of the multiple Operational Assessments that we did develop as components of S.O.N.G.S.'s Return to Service Plan. SE had been deliberate and methodical in development of the Unit 2 Return to Service Plan and nuclear safety has always remained our highest priority. Before I discuss the material relevant to Operational Assessments I'd like to cover the material of today's meeting from our perspective and that is to discuss

Southern California Edison's Return to Service Plan with the nuclear regulatory commission's staff with a focus first on Operational Assessments that foundational to the Return to Service Plan. And then to discuss Response Plans for the Request for Additional Information and then to confirm through dialog with the staff that we have an understanding of the scope and the intent of each one of those request for information. So let's move to slide 5 of our presentation where we'll begin to discuss the return to service strategy deployed. All right, as you see on this slide and this is much detail. This is just a compilation of what is in section 8.0 of the Return to Service Plan. One of the key actions taken to return Unit 2 safely to power is limit power to 70% during the following operating interval. And that's for a key purpose of reducing the thermal hydraulic conditions that contribute to what we've identified as the mechanistic cause of the tube to tube wearing in tube vibration in Unit 2 and Unit 3 for elastic instability. This power reduction significantly fluid velocities and less energy causing tubes to vibrate and then also significantly reduces void fraction, which provides better damping and reduces tube vibration. And then ultimately this reduction in power, or limit in power to 70% prevents fluid elastic instability, the mechanistic cause of the tube to tube wear. Additionally in section 8, we talk about preventable plugging of tubes. We

removed a number of tubes from service that we identified through our analysis as being most susceptible to the fluid elastic instability at 100% power. As I've already mentioned and you're aware we did develop multiple independent Operational Assessments and we'll talk a bit more in the following slides about why we did that. And then also in section 8, 8.3 actually we define a short operating interval of 5 month window which is significantly shorter than the analysis performed on all of the Operational Assessments demonstrates it's safe to operate. And then after that short operating interval again, in a protocol of inspections in the section 8 Return to Service Plan, we'll 100% inspection of the tubes that remain in service for the next operating interval and a sampling of tubes that have been removed from service, we will also inspect through any current inspections. And that sampling size will be determined in our protocol of inspections as we prepare for the Unit 2 mid cycle inspection. Next slide please. On slide 6 you'll see a discussion about our operation Unit 2 operation assessment. And just as a reminder an Operational Assessment is a quote forward looking evaluation of steam generator tube conditions that's used ensure the structural leak and accident criteria will not be exceeded during the next inspection and interval. Operational Assessments are required by S.O.N.G.S.'s technical

specifications and the technical specifications that drive our steam generator program as well as industry guidelines.

Operational Assessments provide assurance that Unit 2's steam generator tubing will continue to meet structural and leaking integrity during the operating period prior to the next planned inspection. Southern California Edison commission developed tube to tube wear operation assessments and they were performed by 3 companies with a long of experience of both steam generator design, manufacturer, installation and Operational Assessments. And those companies are AREVA, Intertek, and Westinghouse. And as we went down the path of Operational Assessment development, as you're aware and have observed, we conducted approximately 6 of what we call, expert panels where we brought in additional worldwide experts from steam generator designers such as Babcock and Wilcox Nuclear, AREVA, Westinghouse and academics. Renowned academics in thermal hydraulics and fluid vibration. And those expert panels ultimately, we got an endorsement by the Electric Power Research Institute, EPRI, that the assessments were conducted in accordance with EPRI guidelines. Next slide please.

We heard a question, and we've heard it several times from the staff over the past months just why the Southern California Edison performed 3 Operational Assessments. Although only one is required for the program, or for specks one is required for

when you're talking about a previously experienced phenomenon, the one known vibration mechanism. The AVB wear, tube to tube support wear. And what we experienced in Unit 2 is new. The tube to tube wear caused by in plane vibration, caused by elastic instability. So we didn't think it was it was appropriate to go down and use a traditional Operational Assessment methodology, we wanted to use diverse methodologies and we wanted to do this in an independent fashion and use the world's best experts to do so. So we did several approaches and they were in parallel, and they were in independent as we went down this path. Southern California Edison in these Operational Assessments developments used both probabilistic and deterministic methods in these Operational Assessments. And the conservative Return to Service Plan is supported by the results of all 3 Operational Assessments performed independently. Next slide please.

The first operation assessment we'd like to give you an overview of, and it was our primary Operational Assessment performed by AREVA used tube support effectiveness, as part of it's evaluation to determine stability ratios for the tubes. And it included a deterministic analysis that indicated a fluid elastic instability will not occur at 70% power. Also performed an analysis to identify margins using probabilistic methods that models physics, the physics of tube to tube wear.

And it included a marginal evaluation which produced results consistent with structural integrity performance criteria. So the AREVA way employed deterministic and probabilistic technologies. The next Operational Assessment we'd like to discuss is the one performed by Intertek, again performed with a lot of experience this area. And Intertek used what we call a more traditional approach and used current methodologies to complete its analysis. This was a probabilistic method and provided empirical evidence into the instability and resulting tube to tube wear growth rates. And it conservatively assumes instability does occur during operation in an evaluation of those wear rates and growth rates. And finally we performed an operation assessment performed by Westinghouse, and the Westinghouse operation assessment evaluated the potential for fluid elastic instability as a mechanic at 70% power using tube support conditions to determine from inspection data and include a future wear. And finally that Westinghouse, based on independent tube to tube wear caused determined that tube proximity, in other words, the two tubes and we only had two tubes with tube to tube wear in the two echo 89 steam generator. Those two tubes that wear was simply caused by those two tubes being too close together. So that was the conclusion of the Westinghouse Operational Assessment. Next slide please

All right, as we have discussed and as Rick introduced the

meeting we're here to discuss primarily the Request for Additional Information that we did receive now in two e-mails the first was November 30th and that was RAIs 1 through 13 and then the additional RAIs we received on December 10th. And those are RAIs 15 through 31. We understand that those draft RAIs will be formal and on the docket in the next coming days and we also understand we'll receive additional RAIs as early as this week and we'll be prepared to response to those as well. All right, before I turn it over to for the RAI discussion I just want to tell you how we approached developing our presentation today. In this next slide we essentially put the Request for Additional Information in 3 different bins, essentially by complexity. So what you'll see is that the RAIs are not in numerical order, 1 through 31. We've prioritized those to make sure that we get the most difficult, we think, discussions up- front and to complete those discussions. So the first bins if you will is RAIs requesting information on the methodologies employed in the development of the Operational Assessments. The next categories are RAIs requesting additional information, including the details on the analysis, or the analytical methods of the Operational Assessments. And then, finally we have RAIs requesting clarification of information provided in the Return to Service Report. So I'll turn it over mike here in a second. I just

want to reiterate that the purpose today is to gain further insight and clarification if necessary on the 31 draft RAIs received today and then to share with the NRC staff our proposed methods to answer those RAIs formally over the next several weeks. And then, when we close today I will give you an overview of where we stand schedule wise in our development of our answers. So today we won't give definitive answers.

Everything that we do is preliminary and we are really talking about what we plan to do from a methodology standpoint to answer the RAIs and we think that will demonstrate whether we do or don't understand the RAIs as they've been proposed today so with that I'm going to turn it over to Mike Short.

>> Thank you, John. For the benefit of those participating by phone, we are starting on slide 11 and we'll move to slide 12 in just a moment. For each RAI I will briefly summarize the basic context of the RAI, then I'll go through SCE's plan to respond the RAI. And then following that I'd like to go through questions from the NRC staff to make sure that our response is understood and consistent with the expectations of the RAI.

Slide 12 please.

The first RAI I'll discuss is number 3. It's in relation to the Operational Assessment prepared by Intertek and the context of this RAI is the definition of a term used in that Operational Assessment known as the wear index. The Response

Plan is shown on slide 12 and its two major elements. The first is we'll discuss the approach to the wear index that were examined. I've listed the 4 approaches, primary approaches that we examined in the slide and it's our plan to provide an evaluation of each of those approaches and to justification for the wear index we ultimately selected for the wear assessment. Let me pause for a moment and see if the staff has any questions about our approach.

>> No, Mike, the, your plan seems like it will, it will be evaluated, taking a look in discussing different values of wear index, in the sensitivity that results to different, essentially different definitions, so I believe that should address the issue when you have the results.

>> All right, thank you, Emmett. If we move on to slide 13 then.

13 refers to RAI number 4. Again from the Intertek Operational Assessment that's additional discussion again on the content of the wear index.

>> [inaudible]

>> And our Response Plan is indicated on this slide. Our first plan is, we will explain that the wear index was based on the bobbin inspection program conducted on San Onofre, Unit 2. We'll discuss how the wear index is correlated to the presence, or absence of the tube to tube wear. And it's

application in the Operational Assessment model. We'll explain how the changes in the wear index are dependent on the tube wear and any vibration and marks the locations, and/or tube support pipe locations. And that the growth rates were developed based on those wear indications, again from the bobbin data. And finally our response will provide a justification for the bobbin based wear index utilized in the wear assessment. And again, does the staff have any questions about our approach to this? This RAI?

>> No, no further questions. I think your plan should give us the information we need.

>> Thank you, Emmett.

Next is slide 14, speaks to the RAI, again the context from this is from the Intertek Operational Assessment and again the content goes to the growth rates for tubes to tube wear. There are a number of additional questions in the RAI book beyond the summary that I have provided so I'll speak to those in just a moment. Our Response Plan will provide an explanation of how growth rates were determined for tube to tube wear based on the operational interval and 100% power for Unit 3, and how those growth rates worked in conjunction with a set of conservative assumptions that provide the wear rate model for the Unit 2. We'll provide a discussion on how the Unit 3 wear rates were benchmarked and the justification for this approach. As a

mentioned there are a number of sub questions associated with this RAI and our responses will address those questions. So once again does the staff have any questions about our approach?

>> Yes, it's not clear from this response that, I can't tell for sure whether you're be addressing the issue we're most concerned with. We know that Unit 3 experienced an instability and consequential damage to tube to tube damage. What is not obvious is the time interval between initiation of the instability and the observed state of the tubes degradation wise at the end of the period. That's an important issue, not just in the context of the, this traditional OA from Intertek, but also the AREVA/MI OA. So that's the key issue, over what interval did the, is the assumption being made that the degradation went from zero to the observed state? That will have a powerful effect on the outcome of the analysis.

>> That answer Southern California Edison, Tom.

>> Yes. I understand you're seeking additional clarity. The information doesn't provide enough clarity in terms of our approach, for you. I feel confident that we can answer this question and that the particular interval is the time interval for particular wear for tube to tube wear. To go from initiation point to the point it reached in Unit 3, which is essentially through the wall. As you pointed out in the sub questions associated with this Operational Assessment, you

refer to work done in the AREVA OA, which does attempt to find that initiation point and the rate of growth from there. So, we understand that's what you're looking for, I believe and we'll include that in the response to your question.

>> Just one additional thought. I, I certainly agree with your objective to maintain the independence of the different OA approaches and I certainly don't want to suggest that one should try to exchange information, or insights between them, it would be desirable to have the logic behind the development of the growth rates stand on it's own two feet in that OA.

>> Thank you for that clarity again. I'd like to move on to the next RAI then, please. Slide 15.

This is number 5. And again, it's a question with respect to the Intertek Operational Assessment. And the question goes to the fact that, we, we have reason to believe that we have indications of wear between tubes and the supports that were not detected by the current inspection program. And the term used to reflect that is NDD. And that's shown in the request for information. Our Response Plan will explain that we actually have two populations of tubes that fit in this category of non- defective wear and we'll explain how the Operational Assessment assigns non- detected wear to those two populations. The first of those populations are those tubes that had a bobbin examination. The second population is tubes that had detected

wear at other locations and those tubes typically had an examination by plus point as well as bobbin. And lastly we'll provide a basis for the methods and assumptions used in the Operational Assessment to account for non-detected wear. May I ask if the staff has any questions to the approach to this RAI.

>> No further questions at this time, Mike.

>> Thank you, Emmett. Slide 16 then goes to RAI number 6. Again, this RAI is reference to the Intertek Operational Assessment. And this is, this slide builds upon the discussion of the previous RAI. Again, talking to probability of detection at locations where tube and support wear may occur. So in our Response Plan we will provide a discussion of the likelihood of significant undetected wear. Both for tube to tube wear and as well as tube to support wear. We'll explain the treatment of undetected wear at supports and for tube to tube contact. And again, we'll provide the basis for the approach used for the OA in part of our response. And once again, does the staff have any questions about this approach?

>> Yes, and I think the, you know the, the key will be to convey the, any sensitivity of the results of the analysis to the assumption that you're making, you'll need to demonstrate that consideration of the, all of the broader possibilities will not change the outcome. That's I guess, the essential fact that

needs to be conveyed.

>> All right so I understand what you're looking for is to make sure that we convey the sensitivity of the results of the analysis to the presence of wear that is not detected when inspected.

>> If your assumption, if you assume something different, and that would have not have changed the outcome of the analysis, I think that's what needs to be conveyed.

>> All right then I think I understand. We, in the Operational Assessment we used a probability detection function and you're asking us to explore the boundaries of that function and the sensitivity of the results.

>> It's not the function so much that I was questioning, but you're limiting, you are, you were using that function over only a small range of possibilities.

>> Right. The represented by the 5% probability for detection. Okay. I understand. We understand what you're looking for and we'll include that in our response. Just give me a moment to make some notes to make sure I correctly convey this to the team.

>> One thing that might be helpful to us as well as you're going through this and talking about your Response Plan is to indicate whether or not you do have the information currently available or whether you're going to be, need to go out and do

any additional assessments and analysis. Whether you have to go get additional information, that will help us as well. In the end we would also know when you're planning to provide the responses for all of these. Whether you plan to provide all of these at once or whether you're going to response to each one individually and when we would have that information.

>> Yes, as John said, when he summarizes, he's going to talk about our tentative schedule, and we're waiting to get these in writing to finalize our schedule based on today's meeting we have a good tentative schedule and we can address that to some degree. I just want you to realize that in some cases with this clarification, our guys may need some time to go back and determine if we need additional analysis. So the extent that we can characterize that, we will but I want to give our guys adequate time to think about the discussion with the reviewers.

>> Thanks, Tom. To the best of my ability I'll try to answer your question. In this particular case the Response Plan that we've indicated on the slide, that information is variable to do these sensitivities Emmett's requesting will involve some additional work. If we could move to slide 17, which discusses RAI number 10, questions regarding our primary to secondary leakage protection and monitoring program and our response to indications of primary to secondary leakage.

The response is on the next slide, slide 18. And there are

3 major elements to our response. The first is, we will provide the action levels and leakage threshold for plant shut down in the updated and normal operating instruction. And of course the action for each of those levels. Those actions reflect the procedure directs controlling those actions promptly when those conditions are met. The second bullet refers to leakage indications that are below the threshold discussed in the first bullet and the process that we will be using to conclude that a valid leakage present. And the decision making process that will be followed by the control room with the assistance of site management. So the difference between the first response and the second, and the response articulated in the second bullet. In the first the control room responds with their procedures. If leakage occurs below that threshold then the plant is asked to involve the management team in developing that response. And the methodology used for doing that is called the site operational decision making process. We have a subsequent RAI that speaks to that same process so we'll be providing a complete description of that process in responding to the next RAI. And then lastly we'll discuss the actions planned as well as those that will be taken in future, with respect to operating training in the classroom and in the simulator. The lessons learned from the Unit 3 shut down earlier this year in response to the steam generator tube leak. And lastly a series of simulations that

were performed to assess the effectiveness of revision to the abnormal operation instruction in the associated operator response. If we could turn back to slide 17 for just a moment. I want to direct everyone's attention to the very last phrase in the RAI. It says any evaluations to assess potential impacts of the revised procedure and I wanted to note that again, if you would move forward to slide 18, the discussion of simulations performed to assess the effectiveness of the RAI is specifically our plan to address that phrase in the RAI itself. So with that discussion, I'd like to ask the staff if they have any questions about our approach.

>> One moment.

>> No further comments, or questions at this time.

>> I wanted to ask for clarification. If I understood you correctly from that last part of that last question, or that last sentence in the question, so, there are no additional planned actions. What you're saying is that the simulator actions that you've done, those are the, you will address all actions taken, but there are not any additional planned actions to assess the impact of this.

>> The assessment of the impact has been completed through the discussion in that third bullet. Yes.

>> Thanks.

>> I'd like to move on then to RAI 16, which is on a related

topic, and that's slide 19.

This RAI asks for information about the limits for reactor systemic activity for something known as dose equivalent iodine. And to help with the understanding of the RAI, I've provided on the, at the bottom of page, slide 19, an extract from the return to service report that we submitted which is known as reference 1 in section 9.3 that is discussed in the RAI. I thought that would help clarify and provide additional information about what's being requested. And as you can see from the reference, the technical specification limit for dose equivalent iodine is a value of 1 microcurie per gram. And what we're doing in this change is reducing that limit by 50% to .5. If you'll turn to the next slide, slide 20. This summarizes our planned response. We will provide a description of that administrative limit and how it's procedurally controlled. And as I mentioned earlier, we in response to RAI 10, we have a site program to, that the plant operators participate in with management called the Operational Decision Making Process and we'll discuss how this program works and how it applies to this particular limit. And the procedure for that program will be provided. So again, does the staff have any questions about our approach to this response?

>> Does the ODM process define the timing of various action points within the decision making process?

>> So the question is, does the ODM process provide timing for response?

>> Yes.

>> Something like this.

>> Yes.

>> Let me ask John Brayback to speak to the ODM process.

>> The operational decision making tool is intended to bring a broad range of the management team into making any operational decision. It would likely include the timing of any requirement action based on the levels of, in this case, those equivalent iodine 131 in the plant. So our initial response is that we have administratively greatly reduced allowed limit. .05 microcuries per gram with the excepted limit of 1.0. But we would initiate the operational decision making, the use of that tool by management to make decisions moving forward which would likely include a timeline for any plant actions.

>> Okay, thank you.

>> Thank you, Emmett. If we could turn to slide 21. This speaks to the number 17 RAI, again, it's on the topic of reactor leakage procedures. The RAI refers to a discussion in our return to service report section 9.4.1 and I've provided that section for clarity purposes. Our Response Plan is at the moment to provide a response essentially similar to that provided, that we already plan to provide to RAI number 10. So

we're asking the staff, if we've interpreted this particular RAI correctly.

>> That is correct, Mike.

>> Thank you. Okay. All right, moving on then to slide 22. Slide 22 refers to RAI 18. Which goes to an upgrade that we have performed on something we call the VLPMS system. And our Response Plan here, we'll do some work to clarify and make sure that we effectively communicate what this system is capable of doing. We'll clarify that this system is not a new system, it's an extension of an existing system and it is not designed to monitor steam generator thermal hydraulic parameters and that's in reference to some of the additional questions requested in this RAI that speak to that. Secondly we'll clarify that the upgrade is intended to provide additional capability. Above that, currently in existence in this system to monitor for secondary side of the steam generator acoustic signals. The upgrade essentially improves our ability from a historical perspective to look back at those signals and help us understand what they mean. Lastly we'll provide a discussion of the capabilities of the system and the procedural actions for its use. As a mentioned there are a number of sub questions with respect to this response and we'll of course address each of those in our response. But the theme of what we'll address is currently shown in the slide on the screen.

So let me invite the staff to ask any questions about our approach here.

>> Hello, my name is Richard settle and I'm representing the instrumental controls branch and I'd like to start our response to this by explaining the context of RAI. Our task when instrumentation is involved we're tasked with evaluating the adequacy of whatever function it is that we're assigning to that and so part of the question I believe was answered in that, it wasn't clear to us exactly what this, what this information would be used for, or what information was being provided. So, but I don't think your plan, your Response Plan is fully responsive to our needs. So you are essentially admitting that your proposed upgrade will not be able to detect the tube wear conditions but will instead be used as a backward looking comparison of the signals against the discovered tube wear. If you were to fully answer the question, you should state why you have chosen to tell us that your -- in your submittal that this upgrade provides in depth an additional safety margin because it doesn't appear to do that. In fact, the instrumentation that you're proposing this acoustic monitor does not appear to be capable of detecting the conditions that would lead to actual tube wear. At best they would appear to only be able to compare signals against future evidence of tube wear, which is really a quite a bit different function and the

stuff doesn't understand where that add an additional safety margin as proposed in the original start up plan.

>> Thank you for that, for those remarks, those are quite helpful. I think, it's our intent in this Response Plan to clarify that we had not intended to, in our return to service report to characterize that this system is a defense in depth measure, that wasn't our intention. We indicated this as an additional action in our report to extent and depth measures that we discuss in our report it was not intention to include this capability as one of those. So we had not in our approach to preparing that report had not intended that it provide the function sited in the RAI so it's our plan as you can see to make sure that's clear. Now we are also prepared to explain in our response why we believe that the measures that we have put in place for defense in depth are appropriate substantial and reflect our conservative decision making in the support of the return to service. And we have concluded that they are sufficient. And we will provide that in our response.

>> Okay. So just, so we're clear on this, so you would basically in your response, you would be recharacterizing as not a defense in depth measure.

>> It would be our intent to clarify, to make that clarification. That is correct.

>> And the stated purpose, so we would be able to match the

purpose of the instrumentation to what it is capable of performing, that's really what we're looking for. We want to ensure that the instrumentation that you're using is capable of performing the measures that you're, you intend it to. Okay.

>> Thank you, that is very helpful. Emmett, do you have anything to add there?

>> Yes, if I could just add a bit of clarification. In our Return to Service Plan, it will include this, Richard, in our clarification the response to the, or the Request for Additional Information. We have a couple of sections in the Return to Service Plan. Section 9 is what we category, the actions that we have taken that we do categorize as defense in depth measures. If you turn to section 11 in the return to service, we have a coupling of things that we just call additional actions. The lose parts, the VLMPS and the G Smart signal which we'll discuss here in a moment fall under the category of just some additional actions we've taken. And you have correctly categorized it, and this is how we have characterized the VLMPS system and the enhancements we've made to it. Really just to give us additional acoustic monitoring capability and to use the tool potentially as a backward look looking tool and analysis in the next inspection cycle if we were to have further unexpected wear that we could perhaps correlate to some information or data that we have gathered via the VLMPS system.

>> Okay, because we weren't really clear on what type of acoustic signatures you would be looking for and not having any historical data on that, it's hard to make an assessment on whether the instrumentation you're using is capable of doing that. So I guess at some future date it might, it might provide useful information that could be used for that purpose, but not at this time. Okay. Understood. Thank you.

>> Thank you.

>> Yes, Emmett.

>> For Unit 3, during the last operating period, um, the loose parts monitoring system did pick up signals that were eventually analyzed as being potentially metal to metal contact. I guess while one might say one is not, is not going to identify loose parts, or loose parts monitoring system as a, defense in depth strategy that you're relying on, still, one might think that it is another issue as to whether if you are picking up indications of something, it would be the question, how quickly would you try to examine those signals and make a judgment as to something, whether something unusual, or unexpected is taking place. You know there, so I hope, I'm not sure I don't remember the question exactly, but what were the lessons learned from your loose parts monitoring system from the last cycle, clearly your implementing some of those lessons by upgrading the system but what might be the lessons learned

in terms of what types of signals might you be looking for and how might you be reacting and how quickly might you be reacting to such indications.

>> Yes. Thank you, Emmett. The question, one of the elements to the question, the full question does request information about lessons learned from Unit 3, and we will provide that in our response.

If there are no further questions then I'd like to move on.

>> Richard do you have anything further?

>> No. I don't. Thank you.

>> Oh, I'll mention, yes there was a sub question to that was regarding how you establish the set points. So basically the thresholds. So I would think that your response would be under that sub question. So basically how you response to alarms that are created in the acoustic monitoring system.

>> That is correct. That will be part of our response.

>> Okay, thank you.

>> Richard you may be interested in the next RAI as well. It speaks to system that we call smart signal which is an enhancement to our process monitoring systems.

>> Okay.

>> And again, I think along the lines of what Richard asked on RAI 18 and his follow up remarks, what the RAI requests is information and data about this system. How it will be use and

what is its purpose. And as you can see in our Response Plan, this signal, this system monitors plant process data associated with the steam generators. And it's a historical backward looking tool to assist in the investigation of future tube to tube wear. So again, if there's any questions from the staff on this approach.

>> Actually not at this time. We really, when we wrote that RAI, we didn't really have an understanding of what this system was going to be tasked with accomplishing. In your Response Plan, you would be providing that information. So we'll be evaluating that once we receive that response. So at this time we don't have any additional questions.

>> All right. Thank you, Richard. Any other questions from the staff? All right, slide 24 speaks to an RAI requested of a report provided by MHI and included in the Return to Service report package. And specifically it asks about a term known as hydrodynamic forces and their effect on contact force. Our response is contained on the next slides, slide 25. Our plan is to provide a description of the analysis used to determine the significance of hydrodynamic forces in the contact force analysis process. We'll discuss findings from this analysis and the basis for our conclusion. The forces do not have a significant effect on contact force. Lastly we'll discuss the influence of hydrodynamic forces on contact forces and the

resulting probability of fluid elastic instability. So again, asking the staff if they have any questions on this approach?

>> And dug to your request earlier, correct me if I'm wrong. I believe this response does require some additional work.

>> Thank you. Thank you for that clarification.

>> Possibly this will be responsive to the RAI, it's difficult to know until we see what, what you provide.

>> Okay, Emmett. I may perhaps

>> Just you know, the point in the question tries to make is it was responding to the assumption that the gaps were not much effected by the consideration of thermal hydraulic loads and the associated following effect. So the question was pointing out that it was inquiring whereas we might have a situation where we have a lot of compression and if the following effect is relieving the compression, that's important. It may not give you any significant change in gaps, but the reduction in contact forces with the following effect, could be important. In the inquiry, is it important.

>> I believe we understand your question, which goes to what is the effect on contact force, and that's the intent in our response. We'll provide that, and as I said, we'll also address how that ultimately has the influence on the probability of instability. So, it looks to me like the response we plan to provide will help you assessing this RAI. Thank you, Emmett.

Just going to make a note for just a moment. And sorry, I was going to repeat myself, there's no need for that. So, moving on to slide 26. We've completed the first grouping of RAI that we felt would involve the greatest discussion with the staff. The next group is, Request for Additional Information that was provided in the service report, and also some additional discussion about our analysis. So the first RAI in this group is number 7 on page 27. And what this request is additional information about what is meant by the words, active wear locations, which is a term utilized in the Intertek assessment and how are those wear locations determined. And our Response Plan will provide a definition of what active wear is, and how it was implemented. In particular with respect to tubes with no signs of degradation or NDD for short. And the second element of the response, we'll express cumulative distribution functions for assigning active wear within the population of tubes represented by the, the numbers in the Request for Additional Information. So with that, does the staff have any questions about this approach?

>> No.

>> Thank you, Emmett. RAI number 8 on slide 28. Again I should mention, there's no additional work needed to response to this RAI. We have the information needed to reply to this response. RAI number 8 is a question pertaining to tube wear

at AVB support locations. Again, with respect to the Intertek Operational Assessment, and our response plan is shown on the slide. We'll describe the method utilized to describe the number of additional wear locations. In that population of tubes with, that had existing support wear at the time of the inspection. This is a method that, is being used to predict the occurrence of wear in these locations during the upcoming cycle, 17. For tubes that, with non- detected wear in them, tubes within the population of strictly non- detected wear, we believe that will be covered in responding to RAI number 7. Which we've just spoken of ago. So does the staff have any questions in responding to this RAI?

>> Not at this time.

>> Thank you, Emmett. Moving on then to slide 29. Slide 29 goes to RAI number 9. Again a question regarding the Intertek Operational Assessment and the benchmarking performed for that assessment. In our Response Plan, we'll discuss the model to initiate tube to tube wear flaws in Unit 2 and how that model was developed from the Unit 3 tube to tube wear data. And we'll discuss how this involved a benchmarking process that utilized the Unit 3 data. Benchmarked against Unit 2 non- destruction examination results. We'll provide additional explanation to clarify the meaning of the data shown in Figure 4- 6 as requested by the RAI and what it represents

from the benchmarking process. And then, finally we'll determine the term, number of observations as requested by the RAI. So does the staff have any questions about this approach?

>> No. Looking forward to your response.

>> Thanks, Emmett. And moving on to slide 30. Slide 30 speaks to RAI 22. This RAI goes to the AR EVA Operational Assessment and it's a discussion about the contact force distribution calculation process. The terminologies used in the report to describe that process and a number of the statistical modeling details associated with the process. Our response to this RAI is shown in the next slide, slide 31. And as requested by the RAI, we'll provide additional descriptions of how those distribution functions were determined. Of contact forces between tubes and AVB support locations. We'll define the terms utilized in the additional assessments here. The terms are, run, combined run, and zones. And we'll explain how changes in cumulative distributions of contact forces vary from zone to zone. Will this response plan address your questions, Emmett?

>> I expect that it will.

>> Thank you.

>> Mike, this is Doug Broadis again. There have been a couple of slides where you say you have defined and provide the definitions. If it's possible, it may help to ensure that we,

you know that we don't have any additional questions. If you have some information of what the brief description of what the definition is, or something like that, it may help us to understand, you know, we interpreting the information correctly in what we're providing, and whether not there is a need for any additional clarification. As you're going through the slides. If you have that information. That might be helpful.

>> Okay so, I understand your request to be wherever possible please provide complete definition of terms used.

>> I'm saying in your discussion here, if it's a straight forward definition, I would think that would be something you would easily provide for us. If you have that, and if you can summarize what that is so that we least have that information now. The purpose, you know obviously, if we're asking for the definition is to ensure we're understanding what you mean by that. It might help us to ensuring that, that we that you understand, that we understand in what you provided in your documentation in your dialog now as to what those definitions are. Ensure that there's not a need for additional clarification in those cases.

>> [inaudible]

>> So, if Dr. Bagley, if you could step to the table.

>> If you give us just a minute we can caucus and give you what you need. Just a minute.

>> We've talked, and in cases where there is a need, where it might be beneficial to provide that additional information, we'll ask for that additional information. In those cases.

>> And again, we have brought a number of experts who are principle investigators in the Operational Assessments, so we are prepared to answer a certain level of question, recognizing the interest of time we want to make sure we get through the questions. Really to assist your staff and making sure we're clear on what to answer, and also to allow adequate time for your public involvement. So we'll response to questions, we'll be glad to answer additional details and let you monitor the time frame.

>> Okay, thanks.

>> Okay, with that background, any additional questions on 22?

>> No.

>> Okay. Thank you, Emmett.

>> On to slide 32 then. Slide 32 speaks to the 23rd RAI. Again this RAI is in reference to AREVA's Operational Assessment and it's a request to provide some additional information on two steam generators, one in each Unit. 88 in Unit 2 and 88 in Unit 3. The figures being referred to provide that information for the 89 steam generators in each Unit. So there's a request to provide that information for the two

remaining steam generators. And our Response Plan will be to provide those figures. Any comments or questions? Thank you. RAI 25 refers to the, again the AREVA Operational Assessment and again to the Operational Assessment on dent patterns and the agreement between those dent patterns and the results of the, something known as the quarter model. And it's a request to provide, or show this comparison. And our Response Plan will be to fully describe that in an evaluation that we will provide you. Any questions about this approach, Emmett?

>> Just a comment perhaps. You know I think based upon the information you've already provided it seems like the information available for benchmarking is a bit weak and so I think, you know, anything you can bring to bear to help strengthen the argument I think will be helpful.

>> Understand that, what you're interested in is, since you have reviewed this information and concluded from it that the benchmarking is not as strong as, as you'd like us, you'd like us to supplement the information with anything else we can provide.

>> Knowing what our additional impression is, if you would have additional information, you know you would bring to bear,

>> Okay, thank you. We do have work in progress to go to Doug's question, this information doesn't exist currently, but we are developing it. That can supplement what, what we believe

you're looking for in this case, and we'll provide that as part of our response. An example of that would be if I can volunteer some information. The dent patterns that we speak of here are also known as classical dents. We have, as you know, we have investigated below classical dent signatures and we can observe patterns in those as well. Which we think are helpful in demonstrating that this model benchmarks perhaps not as strongly as we like, but we think it's an effective model and we think we can demonstrate that in our response.

>> Yes, the degree to which you're going through, you might want to go through additional effort. I mean, that's your call. I guess our observation was based upon not just the dents but of the other type of signal.

>> Thank you.

>> And um, whether there's anything more to bring the table, maybe it is what it is. What we have for a benchmark and we make the best of it and move on. If there isn't anything more. I'm not suggesting you can make something out of nothing, if there's nothing more.

>> Thank you for that clarification. So the original comment applies to both classical dents as well as dent like signals at lower voltages. So that's helpful.

>> In terms of this being a benchmark for the model.

>> Understand. And the additional work I had in mind goes

to the discussion of under and over predicting growth rates in the model. So we can include that in our response as well. All right. Thank you.

Next RAI is RAI number 31. We're on page, 34. RAI 31 refer to the effect of non- pressure loads and how those loads were addressed in two references, 7 and 8, which are the condition monitoring reports for Unit 2 and for Unit 3. In our Response Plan we will compare each type of degradation found in the steam generators to the criteria provided in the industries Integrity Assessment Guidelines and that will include the applicability of non- pressure loads to each of those degradation types. Any comments or questions about our planned response?

>> Yes I think the question is a little broader than what your proposed Response Plan indicates to me. What we're really looking at is the values in the Integrity Assessment Guidelines were developed. There's technical basis report associated with that. In that report they looked, they did some specific testing and analysis of various steam generator designs and developed those limits. And the question is, have you gone back and looked at the technical basis document to make sure that all of the testing and analysis that was performed represents your steam generator design. Because at the time that technical basis document was developed, I'm not sure a large U tube recirculating steam generator existed. So the question

is really, are those values in the Integrity Assessment Guidelines applicable to your steam generators?

>> Thank you for the clarification and we understand your question and we'll address that in our response. Thank you.

Okay we're at slide 35 which refers to RAI 26. Again from the AREVA Operational Assessment. It's a request to provide details of the wear growth model utilized in that Operational Assessment. Our response is shown below on that same slide. We'll provide the details of how wear was incorporated at AVB locations into the contact force calculations. We'll discuss wear locations, wear depths as a function of time. And the gap inputs to the contact force model. Does the staff have any questions about this response approach?

>> Yes. There will be a follow up an RAI that adds additional component to this question. Including what assumptions were made about where are the AVBs themselves. So you have where, you have tube wear at the AVBs and then you have corresponding wear on the AVBs. What was the, what were the assumptions made in determining how much wear was on the AVBs? And how that affects the over all gap. So, that's an additional question that will be coming.

>> Okay. Thanks, Emmett. So I understand there's an additional question that is being developed that goes to the assumptions on tube wear at AVB supports and how it affects the

gap. And then how that AVB wear. Pardon me. Thank you.

>> So let me interject and clarify would it behoove us to hold the answer to RAI 26 and see the additional question. Are they closely related to where we're going to want to answer them both at the same time?

>> They're closely related. I, that's your call. You know, I expect as you gear up to answer this question, you'll be better able in a better position to answer follow-up questions.

>> We'll factor that into our plans then. We appreciate the information. That will be a related one coming.

>> Doug, did you have something?

>> [inaudible]

>> All right.

>> And again, for the last few RAI, this information exists, it's just being assembled and collated into a cohesive fashion for your use.

Okay moving on to slide 26, RAI 28. It's a question about the Westinghouse Operational Assessment and the growth rate of a Unit 3 tube to tube wear indication. And the tube location and steam generator are shown in the RAI. And our Response Plan we'll explain that tube to tube wear rates were not calculated as a part of the Westinghouse Operational Assessment for the tubes in Unit 3. We'll go on to explain that presence of in

plane instability was evaluated by benchmarking tube to tube wear in ut3's tubes and how that benchmarking process determined that in plane instability would occur at a number of tubes in Unit 3, including the sited tube in the Request for Additional Information. We'll also explain why estimates of tube to tube wear rates were not necessary to complete the assessment in the Westinghouse Operational Assessment. So are there any questions from the staff on this planned response?

>> No, Mike.

>> Thank you. Next up is slide 37, RAI 29. Again referring to the Westinghouse Operational Assessment, something known as case 78. A series of cases assessing AVB effectiveness. And we'll explain that case 78, which is for all AVBs in effective at 70% power was calculated as a part of the Westinghouse Operational Assessment preparation. We chose not include this particular case in the RAI we filed as part of our Return to Service report since no tubes in Unit 2 had those conditions. But of course, based, because of the request we will provide that figure in responding to this RAI. Any questions from the staff on this one?

>> Just a comment. It's an important point of reference. We have an evaluation of that from the MHI. It's helpful in comparing different methods for calculating stability ratio.

>> Thank you for that clarification, Emmett. And we

understand it's an important point of reference and it's very good reason for the request made by the staff.

All right. Next on slide 30 RAI number 1, topic of this RAI is the term known as 3 times normal operating pressure differential. That's the pressure differential between the primary and secondary sides. It's very important term utilized in the condition monitoring and operational assessment processes. And a RAI requests clarification of the differences observed in the condition monitoring reports and the Operational Assessments. And our Response Plan is contained on two slides. It begins at the bottom of this slide and continues on the next slide. So we'll go through the bottom of this slide first. We'll explain that each of the reports provided in the Return to Service package utilized a value of 3 times NOPD that's appropriate to either actual conditions. Those for condition monitoring during the prior cycle of operation, or Return to Service projected conditions that we would return Unit 2 to service with. For rack storing conditions and steam generator conditions as I mentioned a moment ago. It's primarily pressure, but it's important to understand RCS temperature, power, and steam generator and second secondary side pressure in order to understand the value for 3 times normal operating pressure differential. So we'll provide that discussion. Secondly, moving on to the next

slide, slide 39. We'll provide a table listing all of the appropriate reactor and steam generator parameters that go into the preparation of this value and the basis for the value used in each of those reports. Both the condition monitoring as well as the forward looking Operational Assessment reports. And because the most significant difference between operation of Unit 2 during the prior cycle and the projected operating conditions of Unit 2 in the upcoming cycle, there was a change made and it's appropriate and as a part of our explanation of why this value has changed is to include a discussion of that change. And that change was reactor pressure vessel head in Unit 2 was replaced during the current outage. And as a result of that replacement we increased reactor operating temperature back to its original, or nominal design value. That increase is, was in the neighbor of 9 to 10- degrees Fahrenheit. So we will provide that, a discussion of that change. Its impact on the 3 times normal operating differential going forward. And we will of course also provide a discussion of the impact of that temperature increase on fluid elastic instability going forward on Unit 2. So with that summary, does the staff have any questions about our approach here?

>> Just one moment, please.

>> No additional questions.

>> Thank you, Emmett.

Slide 40, please.

>> Hang on a second, Mike.

>> No further questions.

>> Okay. Thank you.

Okay, slide 40 then. Thank you. This slide speaks to RAI number 15 discussion of retainer bar wear. Which is provided in our Return to Service report in the referenced section. And it's a request to discuss the integrity of those preventively plugged tubes that we did not use stabilizers. In our Response Plan we'll provide a discussion, first of the wear mechanism of the tubes adjacent to the retainer bars and how that wear will proceed during operation. And a description of how stabilizers were deployed to ensure integrity of those tubes. That will be provided as well. The staff has any questions about this approach?

>> I'm suggesting with the question that this is an issue for the 5 month inspection that you have planned but it is, it's a concern that we have over the longer term. Say during your, when you're on a more normal inspection cycle. The plugged tubes are adjacent to a retainer bar that vibrates and this vibration was the cause of wear in some tubes that were subsequently plugged and stabilized. The other tubes were plugged very few are, have stabilizers installed. As I recall there was more than just a fundamental mode of vibration, there

may have been a second mode or a third mode. Depending upon the mode of vibration which ones are dominant, different tubes might see more wear than others over time. It wasn't immediately, it's not immediately evident that the, the stabilizers you've installed ensure that tubes that are not subject to future degradation. If these tubes are subject to future degradation, how do we they won't ultimately break and cause damage to adjacent tubes? So, that's the longer term issue aside from, and it's not a concern for the 5 month inspection but over the longer term that would be an issue.

>> Thank you. We understand that this is being pursued as a longer term issue and it's, the staff has concern that it's not immediately clear how the tubes that were not stabilized are protected from integrity issues. So we will address that in our response to the RAI.

>> It's been suggested that I need to clarify what I mean, or why I feel that this question about the need for monitoring plugged tubes, unstablizedilized plugged tubes over long- term. Why that's not a concern for the 5 month inspection. You know the need retainer, the analysis that have been put forth so far suggest that neither the retainer bar, nor the tubes adjacent to the retainer bar have a fluid elastic instability. The determinates appears to be the excitation mechanism so I don't feel like this is an immediate concern. But, you know is it

a longer term concern. The retainer bar did cause, you know, fairly deep flaws in the few tubes it did affect so far.

>> Thank you. I believe you know we do have follow up inspections planned of these locations during the normal refueling outage inspection plan, not the mid-cycle itself. So, we'll include a discussion of that inspection plan in our response.

>> I think at this point we've been going for an hour and 40 minutes now so I think it's appropriate to take a short break at this point.

>> Why don't we get back together at 5 to the hour. 5 minutes to 3.

>> Let's make it 10 minutes to 3. That will give everybody 8 minutes. 8 minutes folks. You folks on phone, 8 minutes we'll get back with you. Thank you very much.

>> Restrooms are out this door to the left, in case you need them.

>> All right, we're just about ready to start back up. Half of the people are here. I'm sure all of you folks at home, or on the internet, you're all with us, right? We have you muted right now. Your turn is coming. Going to give it another additional minute I think before we start here. Now I asked at the beginning of the meeting. If there are any members of the public, or press here and one lady identified herself and

I think there are a few others but I don't think they're back from break yet. At some point I may try to work that in between questions to ask. I may take a break from our questions to ask that question again just so we all have an understanding of who is here in attendance physically. But for now, Mike, why don't you continue with the next RAI. This is where we have Ken Parks participating again here.

>> Yes I wanted to confirm whether Ben was on the phone. Paul is here.

>> Paul will be addressing the questions.

>> Ben is on the phone, but he's having trouble connecting so, but he is on the phone and he can hear you.

>> Okay.

>> Thank you.

>> All right. So go ahead, Mike.

>> Thank you. We're on slide 41. The next 4 RAI s, 11 through 14 all discuss questions regarding safety analysis, core design and chapter 15. So I've asked to join us at the table Vick Nazarath from San Onofre who is responsible for these areas at S.O.N.G.S. So we'll start again on slide 41 with RAI 11. RAI 11 speaks to the safety analysis operation at the reduced power level we plan to return to service with, 70%. And just by point of clarification, the first sentence in the RAI requests an operational impact assessment. We have

interpreted that as the safety analysis and the impact on the safety analysis. And our Response Plan speaks to that. We'll provide a summary of the impact evaluations performed for operation of 70% power on core design and the safety analysis. We'll provide a table summarizing the impact assessment on the reload and chapter 15, safety analysis. In addition we'll provide a table summarizing the assessments of the impacts on core design. And technical specifications surveillance requirements. And finally we'll discuss the conclusions of the safety analysis methods, the safety analysis themselves. Read out loud those consequences and the applicability of the technical specifications for the extended operation of 70% power. Any questions from the staff on this approach to this RAI?

>> Yes. The proposed response looks acceptable. How are, in your response tables if you could indicate where any of the calculations have yet to be completed and what the completion schedule would be.

>> So the request is that indicate in the tables any calculations that are yet to be completed.

>> Correct.

>> Certainly we'll provide that as part of our response.

>> Just for your information, Paul, this is Vick Nazarath and I'm the manager of Nuclear Fuel. We have completed all of

the calculations currently to support this.

>> Excellent. Thanks.

>> Thank you, Vick. RAI number 12 is on slide 42. This request speaks to uncertainty in reactor system flow as well secondary side flow. Our Response Plan is shown on the slide. We will discuss the RCS flow uncertainty evaluation and how it's affected by operation at 70% power. We'll provide a discussion of the treatment of RCS flow uncertainty within our safety analysis and the technical specification flow limits and we will discuss secondary side flow uncertainty as well and the evaluations performed for main steam flow, main water free flow and steam generator blow down flow. And again, does the staff have any questions about the specifications outlined in this response?

>> Yes. As part of your response, if you could tie- in how those uncertainties affect your power measurement uncertainty, your primary calometric, and your secondary calometric. Uncertainty that may be used to monitor the 70% power plateau.

>> Understand you've requested that we tie- in how these uncertainties affect calculation of primary side power through the calometric process. And we'll provide that response.

>> RAI 13 on slide 43 speak to the analysis performed of the ECCS systems and one of the questions is whether tube plugging has been addressed in that evaluation. In our

Response Plan we will provide a discussion of the evaluation performed for the replacement steam generators on the ECCS and we will also discuss, provide a discussion of the changes in plant, the planned operating conditions for the upcoming cycle and the evaluations performed for their impacts on the ECCS performance analysis. Tube plugging is included in that analysis. Does the staff have any questions about this approach?

>> No, the response looks acceptable.

>> Mike, before you go, just briefly before we started the meeting I asked if there is any member of the public here, or the news media. And Kendra I think you came in after, maybe you'd like to introduce yourself just to have you on record. We're happy that you're here. There's a microphone right behind you.

>> Hi. Oh yes, that's on. Hi. I'm Kendra Olrish, I'm from Friends of the Earth.

>> Okay. Is there anyone else besides Kendra that came in after the question was asked earlier? All right thank you Kendra, and we're glad you're here. Thank you very much. I'm sorry, Mike, go ahead.

>> Oh, no problem. We're up to slide 44, please. 44 speaks to RAI number 14 and it's a request to provide summary dispositions of the calculations supporting Unit 2, cycles 17.

And our response will provide dispositions pertinent to each of the prior 3 RAI and we'll include those responses in each of those 3 RAI s. In addition we'll provide a summary of the impacts of reduced power operation on our plant protection system set points and those include reactor and pump low- flow trip, steam generator water level indication and control and range level indication and control. And the validation for the control systems. And then finally we'll include a summary of the RCS internal analysis at reduced power conditions. Does the staff have any questions about this approach?

>> Nope. Looks acceptable.

>> Thank you. All right, with that I'd like to move on to the final group of RAI, those that request clarifications to our Return to Service reports in the middle. The first of those is RAI 20 on page 46. And this is a question regarding the pertaining to the AREVA Operational Assessment. It's a request for clarification and as what we mean by support clearance. And as you can see in our Response Plan we'll explain that the design nominal clearance between tubes on AVBs is based on ambient conditions. Any questions from the staff on this?

>> No.

>> Thank you. Next on slide 47 is RAI 21. Again on the speaks to the AREVA Operational Assessment and it's a question whether we considered plugged tubes in the thermal hydraulic

and stability ratio analysis conducted in support of that Operational Assessment. And asks us if that's correct and the Response Plan is to explain that the staff's interpretation is correct. Any questions, Emmett?

>> No.

>> Thank you. Next to last RAI is RAI 24. And again this is a request to clarify some wording in the figure of the AREVA Operational Assessment. The figure is labeled 6- 20. And there's a sentence that the RAI is requesting additional clarification on. And as requested in the RAI, we will clarify and explain that sentence fully in our response. Any questions from the staff about this?

>> No.

>> Then finally RAI number 30 is a request to provide an additional graphic in our Return to Service report we provided a graphic for void fraction as a function of location of tube to tube wear and the request is for a similar figure for a term called maximum interstitial velocities. Those velocities are discussed in a table form in the report and this is a request for some additional information about, about those velocities and will provide a similar figure for those in the report. In our response to this RAI. Any questions about that response?

>> No.

>> Thank you, Emmett.

Well, that concludes our planned remarks on each of the RAI s. We'd like to offer an opportunity for the staff to follow up with questions with the principles, authors of 2 of the RAI s. The ones that had the largest number of questions and that is Dr. Bagly from AREVA and Russ Supola from Intertek. So I'll ask Dr. Bagly and Russ to come to the table and we'll start with Russ Supola. So if there are any additional questions or comments you'd like to offer to them.

>> All right. Our intent here is that if you're capable of answering some of the definition questions that the OA riders would do that for you. So if you would like those questions, those definitions provided, Dr. Bagly and Russ are available to do that.

>> Yes. I think that would be appropriate and we can go ahead and do that. I guess I was trying to get through.

>> Yes. I believe there's a couple of slides that we can reference here. Slide 27 for RAI number 7 and that was the Intertek OA that Russ Supola was the primary author of. The definition in the RAI, the request for some definition is to define active wear. Each active wear location and how are the active wear locations determined? So, Russ if you could shed some light on those.

>> Thank you, John. The active wear location is just a matter of definition of the finding of locations in the

population of undetected tube wear and there was a group of tubes that had no detected wear at all. And because we need to assume that there could be some wear, that's not detected at a special level, we assigned locations to each and every one of those tubes and that is based on the observation we had in Unit 2 for those tubes we had wear. So, for every location we just called that active location for active wear. And then we assign locations to that. So it's just a matter of undetected wear population and where we could have wear during cycle 17.

>> We'll clarify that in the RAI.

>> Thank you.

>> Any other questions for Mr. Supola. Thank you, Russ. I believe the next slide where we had some definition questions, if you'll turn to slide 31, and that's for Request for Additional Information, number 22 and that's in that terms, run, combined run, and zones will be defined as part of our RAI response, and Dr. Bagly if you could just take a couple of moments to shed additional light on those definitions.

>> Well it's just a small region of tubes typically, 10 rows by 10 columns wide. And in that particular zone, we'd say that the cumulative force distribution given for AVB is characteristic of the zone. All right, so it's a small region and the cumulative distribution is different for each AVB, but its characteristic of the zone. So while you don't know the

contact force, or gap because, we calculate both forces and gaps, while you don't know it for any given location, you know it is 1 pick from that distribution. Okay. And a run is basically 1 run of an abacus finite element program that models the tubes, the AVBs and all of the support structures. Explicitly models those. It's an MHI model highly non-linear problem, very sophisticated analysis, but you input gaps to all of the AVB to tube intersection and the program rebalances the gaps, consistent with the support structure strengths. Conditions of, and requirements of equilibrium compatibility and stress, strain relationships, rebalances the gaps and the output is contact force, while you would get that if you have a negative gap. You have a contact force. And since you have an AVB on either side of the tube you could have a contact force on one side and a positive gap on the other. Or two positive gaps or 2 contact forces. But that's output from the program. There's 24,000, approximately, in a quarter model. It takes 6 to 8 hours to run. So that gives you, for every AVB intersection in the quarter model it tells you what the contact force is and the gap sizes are.

Now, ideally you would like to take that and run it 10,000 times. But, since it takes 6 to 8 hours for one run, you can't do that because it would take you years. So basically 1 run is just 1 run of that model and we talk about combined runs,

we basically talk about running that model with different random inputs. Inputs are the different elements of gaps that come in from different manufacturing effects, all right, so you make a selection for all of those locations, run the model to rebalance everything and give you your answer. So, combined runs is when you would say, okay, in this particular zone I have, for given AVB, say, number 5 I have given results from this run and the results from another run, typically we use 10 by 10 zones and 4 runs which gives us a decent cumulative distribution of contact forces. And then, since gaps vary from zone to zone through out the bundle, you then get different distributions of contact force depending on where you are in the bundle. As you approach hard spots then you get very high, you know, high contact forces. You get the more compliant areas, you get lower contact forces. So that's basically that's an explanation of the terms, run, combined run and zones and basically says, yes, cumulative distributions change from zone to zone for given AVB, depending on whether you're verily highly constrained part of the bundle or something that isn't very constrained.

>> Any questions further From the NRC?

>> Not from me.

>> Okay.

>> Thank you, I appreciate that.

>> Thank you, Dr. Bagly.

>> Well at this point I'd like to summarize where we've been today. I think the clarification that we've received today on the intent and scope of the Request for Additional Information have been very helpful for us in preparing our responses. I mentioned as we began today that we would provide an overview as to what we perceive our schedule to be as far as developing the response to the RAI s and I can tell you, Doug, your point was good. Some of these RAI s do require some additional analysis and those are the long legs, or critical path as far as our schedule response. But it does look like most of our work will be complete in early January by the, certainly by the end of the first week of January. And that includes our own internal reviews to ensure our quality is appropriate before we submit those on the docket to the NRC. So we're looking at the end of the first week to mid- January to be complete with the current scope of RAI s. We do understand that we'll get additional RAIs and we'll follow up with you certainly in the same manner that we have today to establish a schedule and let you know what we intend to do as far as submittal

>> So that would be to, where they're actually signed and submitted to us will be by mid- January?

>> That is correct.

>> All right, so that's a schedule overview. In reviewing where we started out the presentation today we'll have a

discussion of why we did 3 Operational Assessments and as I said we recognize because of the first of the kind condition of tube to tube wear in plane vibration caused by fluid elastic instability that the traditional Operational Assessment methodology may not be good enough. So we sought to diversify to take the world's experts in Operational Assessment development and steam generator design and have them review in multiple parallel paths and come up with results that we'd make decisions on moving forward with Unit 2's restart. As I said, the most conservative of those Operational Assessments allows on operational window significantly longer than the 5 month window we planned to operate going in and getting additional data in mid-cycle inspection. So the 3 OAs provide independent analysis of the condition provide conservative conclusions and all of them support the Return to Service plan that we have submitted in our CAL response back on October 3rd. Any questions about the OAs methodology or the intent and purpose of doing 3?

>> No, no additional questions.

>> Okay, thank you. At this point then I'd like to turn it over to Tom for our closing remarks.

>> Thank you John. And I'd like to thank everybody who assisted on behalf of Southern California Edison in developing the responses to date and the further work we have to do. I

want to kind of echo what John has said. First of all, thank you to the staff for the time you've taken in reviewing our material and developing your questions and the time spent today helping to clarify them so that when we do answer formally in writing we truly understand what you're looking for and we do provide the information. What I heard today is there is some clarification as to what we already submitted that we need to be clearer on either what intent was, or what some terms are. There's some additional material you would like to see. Some of which we have already developed. Some of which we have some new work to do. So I think we are leaving with a good understanding of that. So we appreciate that, and we certainly look forward to the additional RAI s that you are formulating in that we are anxious for you to transmit them when you are ready and we will certainly response to those to make sure we understand them. Whether it takes a formal, call another meeting, whatever works for you, we are ready to support and looking forward to getting those so we can assist you in providing you with what you need. And then ultimately at the end of the day it is important to us that you conduct a critical review. It's an important role that you have, not only for us, but more importantly for the public. We appreciate that, and understand that and we are ready on our end to do whatever it takes to provide you the information for you to conduct and

complete that critical review and we certainly go back to our opening statements about the importance we place on safety, public health and safety, safety of our employees. We feel our work is conservative. That is has margin and we understand the phenomenon effect that we propose operating Unit 2 at 70% for a 5 month period. And we certainly want to make sure that you have adequate time and materials to reach your appropriate and independent conclusions. So we look forward to supporting that. So thank you for the work today. We appreciate that, and with that I'll turn it back to you, Doug.

>> Thank you, Tom. I appreciate meeting with us today to go over your planned responses for these RAI s. As you indicated and as Dan indicated earlier, we will have additional RAIs, we know that already. We'll get those out as soon as we can. And we'll determine whether there is a need, a potential need for an additional meeting such as this as a result of those as well. We look forward to your responses and obviously our review will be able to continue after we get those as well. Not saying that we're, we're not doing anything right now, we are continuing to review that, and there may be even farther RAIs past what we've got developed right now that we're still working through the process. So, one thing that will occur is obviously, depending on the information that we get back, that may impact our over all review schedule as well. So we'll take

that into account and try to update our, information that we have on the website based upon our own review progress and, you know when we get the responses and the amount of additional review that we'll require at that time to try to make sure that's clear. You know of where we are in the process. So, with that do you have anything else?

>> Not that I can think of.

>> Anybody else at the table? I just want to make sure if we have had any other closing remarks, or questions, or anything else? No. All right.

>> Just a, you know, Randy, you Doug referred to RAI s that are still outstanding. Either you have them, or you're about to get them. In my area these are the additional questions you'll be seeing are largely questions you've heard before in the context of the region 4 inspection 2 weeks ago. And I think you'll see inside those questions, in addition to the ones we covered today our big interest of ours with respect to the different analysis that have been done are the, not just the, you know, making sure that we fully understand the scope of uncertainties and the degree of uncertainty in the prediction models. What are the key parameters, how do they affect the outcome? Making sure that we know what proper range of those parameters are. So that's about it.

>> Okay. All right. So thank you again. And you know,

ultimately, all of this information as well as the information that the region is gathering as part of their inspection will be used together to inform our final determination on whether or not Unit 2 should restart. Whether there is basically our criteria for that is, is there assurance to, that is there is protection of the public and the environment as a result of that planned restart. So that's our, that's how we're going to proceed with that.

>> All right. At this time we're going to open up the floor to questions. These questions will be directed to the NRC, not the licensee. And I'm going to ask you to restrict your questions to this content of this meeting. The RAI s that were discussed. So, is there anyone here today that has any questions regarding any of these RAIs? Kendra. Okay. Here comes the microphone. Kendra. Why don't you stand up for us. It might be a little easier.

>> That's awkward. Hi. I actually have two questions. One, I hope you'll forgive me is slightly outside the scope of this meeting, but Edison did respond to a question from NRC staff previously that they had in fact conducted a 50.59 analysis of their restart plan. I'm wondering when the public can expect to see that document.

>> I'm assuming you're referring to the, as part of the AIT follow up inspection. Is that what you're referring to?

>> Yes. That they had in fact conducted a 50.59 analysis to whether their restart plan affects they're final safety analysis report and their further operating license.

>> You're going to have to hang on a second, Kendra.

>> I know what she's referring to.

>> I'm Dave Bolier, I'm in the general communication branch responsible for 50.59 for the agency and you're referring, future, the 50.59s that had been performed by the licensee since the shut down not, you're not looking for the historical. And in terms of whether those are going to be made public, it's a licensee document and licensee documents are not made public.

>> Okay. Just wanted to get some clarity on that. The NRC staff had asked at a previous meeting of the licensee whether they had conducted a 50.59 analysis of their restart plan. So, perhaps some of you recall that? Mr. Palmazano. I don't know if you recall that? And they responded that had in fact done that.

Now, if they haven't and that was a misstatement, then that's fine as well, I just wanted to get some clarity as to whether or not that document exists and whether the licensee had conducted an analysis of their restart plan. And whether or not the public can expect to see that document.

>> Well I'm not sure what you mean 50.59 of the restart plan.

50.59 evaluates changes to the facility as described in the FSAR, so we'll, whatever is in the restart plan, or whatever, any other changes that involve steam generators that have been conducted, any 50.59 that has been performed since the shut down. We're reviewing 100% of them, both in head quarters as well as regional inspector are independently inspecting all 50.59s. So we don't make the 50.59s available but you'll certainly have our results of our inspections available.

>> And I apologize but the public I work very closely with the public in Southern California who are most directly impacted by this issue and I'm sure you can understand in light of the rapid degradation of brand new equipment that they are paying for that they have very little faith in a process in which they cannot see that kind of document. So that is why I'm asking the question because in the interest of public transparency.

>> All right, Kendra.

>> And I do have one other follow up question.

>> I'll tell you what, let's close out this question first. I think if you have more specific questions or comments about this 50.59 and the actual document, what you should do is maybe submit a question through the NRC public feedback form. This specific question, seeking answers to it. We're trying to stay

>> No problem.

>> At the end of the day licensee documents are not made

public. That's the answer.

>> Okay. [inaudible]

>> So, what's your next question?

>> My other question, and this is specifically pertaining to a question that was asked at the last NRC meeting on November 30th.

>> Hang on a second Kendra.

>> But this relates.

>> Does it have to do with the RAI s?

>> Yes it has to do with Operational Assessments, which have been brought up repeatedly today. That the, I found it really interesting today that the Operational Assessment that Intertek did with traditional measuring actually showed instability, however when Mr. Palmazano was questioned about why they believe that reducing power would actually improve void fraction, dampening, and the function of anti-vibration structures that exist why they believe that is the case at 70% power? They said that this is based on experimental data that has never been used in an Operational Assessment. And that's a direct quote from Mr. Palmazano, so maybe he wants to answer, well, I guess I can't ask him. So I'll ask the NRC staff whether or not they're going to be taking a very close look at the experimental data that's actually never been used in an Operational Assessment according to Mr. Palmazano, and how

that impacts the safety and the assurance that the public can have that this restart plan would guarantee the safe operation of these reactors.

>> I'm not sure I got the whole question. The Intertek analysis to which you refer is isn't predicting instability, its assuming instability. This is intended to be, to address a worse case scenario where the Unit 3 disease exists and hasn't been eradicated and evaluates the consequences. So it's one point of view, they have, other OAs directly address the issue as to, with the corrective actions and so forth. Directly address the issues as to whether an instability will occur during the cycle and the objective of that analysis to show that they won't occur. But the Intertek analysis assumes, rather than predicts on instability.

>> Thank you for the clarification, I appreciate that. My concern is that assumption that 70% power reduction is based on experimental data that has not been used in an Operational Assessment. And that's according to Mr. Palmazano, so,

>> How about if we direct, how about if we let the NRC respond to that.

>> I guess I'm not sure which experimental data that you're referring to.

>> He referred to it as work done by the Canadians and specifically Dr. Pedigro.

>> Carl, maybe you might want a shot at this.

>> I am not clear on the question. Can you repeat your question please.

>> Yes, the question is that the safety of the restart plan, the improvement of void fractions and dampening and the improvement of existing anti-vibrational structures was based upon experimental data by the Canadians, according to Mr. Palmazano, and Dr. Pedigro that's never been used in an Operational Assessment previously. So I'm wondering what critique the NRC is taking. What action you're taking to ensure the safety of a restart plan that's based on experimental data that has not been used before.

>> Yes, so we are reviewing range of research data, not just what have been done by the Canadians. So we are, you know, considering all of that data and this data is used to support a code analysis that we are doing to validate the conditions at 100% and at reduced power of 70%.

>> And will that assessment be made public?

>> I understand that, yes, it will be.

>> All right, thank you Kendra. Let's go to the phones. We have anybody left on the phones are did you all go home? How about if we key up our first caller, questions on phone. Todd, do you have anybody on the phone willing to ask us a question?

>> I have a question from Kevin Higgins.

>> Okay, Kevin Higgins. Hi. What's your question? Is it about these RAIs?

>> Yes it is. It's a direct question that I have in regard to the meeting that took place, here, hold on a second, I'm actually at work right now so I'm stepping outside. The question I have in regards to what's taking place is number 1 the steam generators, I was in Tanechula and one, I think it was a steam generator was parked on the side of the hill by the border checkpoint and I, I'm just curious to know as to the following question and to the individual who just asked the question, is what precautions are being taken place for us. We're stuck out here, we don't know what's going on, and some of the questions that you guys have answered, it's hard for me to comprehend exactly why this facility is operating at 70% capacity when it should be operated at 100% capacity? I mean, there's too much of a risk. You know.

>> Okay, so what's your specific question?

>> My specific question, my specific question is, why take a risk to run it at 70% capacity when something this dangerous should be run at 100% capacity? Something run at 70% capacity that could wipeout Southern California is just too much of a risk. I don't understand why it has to operate at 70% capacity to find out what's wrong with it.

>> Okay. All right. Thank you for your question.

>> Yes.

>> Our understanding of the, of what had been proposed by the licensee is that they plan to operate, they are proposing to, not planning to, operate at 70% power for 5 month cycle. Obviously our review is going to look at whether or not we believe there is assurance protection of the public health and safety. Under those conditions. That is going to be our primary criteria of our reviews. Does it meet the criteria? The performance criteria for steam generator tube integrity and it is safe to operate at 70%. So that will be a question that we're looking to get an answer to.

>> I'm, just one quick thing though, I am at work, I'm trying work and get things done. I was waiting for quite a while so, it does sound a bit choppy, but the one thing I do want to leave you with and it was a friend of my who was an airline pilot and still is, I asked him would you ever take a plane up, would you ever fly a plane up at 70% capacity when you risk the chance of 265 million people. He said I would never ever take a plane up unless I knew it was 100%. So my point to that, why run a nuclear facility at 70% for something that is that much of a risk that should run at 100%. That's all I have to say.

>> All right. We thank you for your question and your comments. Thank you very much.

>> Thank you.

>> Okay, who else do we have on the phone? Do you have another question? Why don't you give us your name and your question. Again, let's direct it towards the RAI s and this meeting.

>> Gary Hedrick, your line is open.

>> Hi, Gary., how are you doing?

>> Hi. I'm doing fine. I'll try to make this quick but I know a lot of people understand that the public that leaves close to San Onofre were disappointed that this meeting was not held where we could attend, but we also understand it's a very technical nature and at the same time we understand that the next meeting, mid- February may be the only chance for the public to have input.

>> Gary let me stop you there for a minute. If there is another meeting such as this. The public's going to be able to listen in on it. If it's another category 1 meeting. I can't say, I don't think anybody can say, the NRC is not going to say at this moment, that is the only meeting where the public is going to be allowed to participate. But go ahead, we're listening.

>> Okay, thank you. The point I really want to make, with these technical discussions, it would really increase the public's confidence in the procedure if we knew there were also independent experts that the table that we have a certain amount

of confidence in, such as David Lackbon and concerned scientists, or [Inaudible] of Fairlyn, and both of those people have reputable back rounds and history, I'm sure they would add a lot to the conversation, and at the same time give the public a level of confidence that we just don't have right now. We want to include them in the process and give the data so that they can give important feedback.

>> Okay Gary , we've got your comment registered, we hear it. It will be considered. Do you have a specific question on any of those RAIs? No I just have that comment about, if anything public confidence and I can't do that in person.

>> All right, we certainly appreciate your call in. So thank you, Gary. Who's next on the line?

>> At this time there are no further questions.

>> Well we'll give it a minute. Ma'am. I'll go to a question here, right here in the meeting room.

>> Thank you. The,

>> Why don't you give us your name again.

>> Elaine hero with plants. Southern California Edison officials predicted that they would have the final response to the existing RAI s perhaps in early to mid- January. At this point I was wondering if there was any preliminary timetable at NRC to decide how long it thinks it might take to review and come to some decision on the acceptability of the responses as

well as the third round of RAIs that are being developed now. Can you tell us when you expect to release that and an idea as to how many might be going out?

>> Thank you. Doug.

>> Hopefully, I'll be able to answer all of the questions. The first one is the timetable. What we're trying to do is, we put up on our website some estimated milestones and those kind, are intended to lay out the key steps that we have in the process. What we've indicated in there is that there might be a need for additional meetings, such as this. There may be a need for additional inspection activities from the region folks. What we don't know, and what we don't have in front of us, is how many additional activities are going to be needed. I want to make it clear we don't have the defined time frame for this, those are just estimates for this based upon the information we have in front of us. As I indicated assess the additional information that is going to be provided to see how long that is going to take to review that. As we have indicated on the milestones that we have on the public website we don't expect to be ready to make a decision any time before February. And it could be much longer than that depending on how long the review takes and based on additional information we're requesting.

>> May I ask that February projection is based on the present

RAIs and not the third round that is being worked on now.

>> That was actually, that was based upon the amount of time it would take us to get through all of the information and the review document assuming that there would be some amount of time for RAI response, and that's based upon the information that provided today as to when that information would be provided. We're going to have to re-assess that and see how much longer that, whether that would add more time to it or not. We're in the process of developing additional RAIs and I don't know the number off the top of my head, but I think as we indicated, Dan or somebody indicated earlier in the meeting, we could, we could issue any of those any day now. We've, we're putting them through the process, the review and approval process internally and then we'll issue those in draft form. What we're trying to do is get those out as soon as we can for the review process and approved to get them right to SE so that they can begin working on them as soon as possible.

>> Thank you, Doug. Todd, do we have anybody else on the phone? Any more questions?

>> You have a question from Ken hall. Ken, your line is open.

>> Hi, Ken.

>> Hi. Can you hear me?

>> We can hear you loud and clear? What's your question

is it about today's meeting, and the contents of today's meeting?

>> Yes it is.

>> Okay, go ahead.

>> Well, first, who is the man standing up pacing around nervously on the video? That guy makes me nervous, I don't trust him. What's his name? Can you identify yourself please.

>> I'm Rick Daniel, I'm the facilitator. Am I bothering by pacing? I'm sorry I have a habit of doing that.

>> Are you an employee of the NRC? Who do you work for?

>> I work for the NRC.

>> What's your position?

>> I'm a facilitator, I do a lot of different things.

>> It looks like the decision's already been made that, why aren't you making these documents public. This is being based on fraudulent data. These reactors are dangerous. I mean these reactors should be closed down now.

>> Okay, so.

>> These guys are much worse than drunk drivers and NRC's relationship with these SE people is way too cozy.

>> Okay, so what's-

>> We need a full investigation, a congressional investigation into what's really going on at the NRC and their cozy relationships with the nuclear industry.

>> Okay, Ken, thanks, for your comment. Do you have any questions about the RAIs today?

>> Yes. We need to shut these reactors down now.

>> Okay, we appreciate your comments and you know, short of having a question on today's meeting it's hard to entertain any additional discussion there. Do we have anyone else on the phone? Anybody else in the audience.

>> Shut them down.

>> Thank you Ken, appreciate your thoughts.

>> Kendra do you have anything else?

>> I'm fine.

>> Ma'am in the back? And do we have anybody else on the phone besides Ken?

>> You have a question from Don Lighting.

>> Okay, go ahead, Don.

>> Hi, thank you for having the meeting today. I'm, I'm not sure which document I should be referring to because I can't see them since I have such a tiny screen but the NRC and the NRR need to address beyond basic event if they're running at 70%, or 100% power because what I've read on the net and expert testimony, S.O.N.G.S. Unit 2 tube damage is such right now and they have not been 100% visually inspected using world class technology. Why, how's this reactor going to react to the beyond basic event, like a main steam line break? The amount

of time the control room has to operate is minutes, not 15- 20 minutes.

Thank you. That's my question.

>> Thank you. Emmett would you like to respond to Don?

>> First, the steam line break is not a beyond design basis event. A steam line break actually, within the design basis is an analyzed event. As is, an actually steam generator tube rupture. It is a design basis event and it's analyzed in the FSAR.

>> All right, Don, are you still with us? All right. Emmett, go ahead.

>> With respect to the inspections, you know the steam generators have been inspected 100% with the industry stand probe. That is all tubes from end to end. In addition, a specialized probe has been performed for the entire u bend region for the region that balances the effected region of the steam generator.

>> Still there?

>> Yes we're still here, Don.

>> Okay, great, I have one really great follow on question.

>> Okay. Hang on. Emmett's just, let Emmett finish and then you can ask your follow question.

>> I've finished.

>> All right, what's your follow up question, Don?

>> My follow up question is, is the NRR going to now work on a cascading steam generator tube failure scenario up to the current time? It's only been a failure, a rupture, or a leak. And S.O.N.G.S. Unit 3 as proved that many tubes can fail at the same time creating what's called cascading effects. Thank you.

>> Well naturally the objective of the work that is on going by Southern California Edison is to demonstrate that no tubes will have unacceptable structural margins, or unacceptable tube integrity margins. So the objective is to not encounter the sort of situation that you described.

>> Thank you, Emmett.

>> Thank you very much, and one suggestion is, I think they should have a dedicated e-mail address so people can send the NRR specific questions, technical questions that they'd like to see the NRR address. Thank you very much.

>> You know, Don, before you go, there is a feedback form if you send your question in, there's an NRC public feedback form available on the NRC website. If you or anyone wants to send the NRC any additional questions and they'll be referred to NRR, or to the appropriate people. We'll try to get your questions answered. So, but we appreciate your comments. Anyone else on the phone?

>> Your next question comes from Ron Rodardi. Your line is open.

>> Go ahead, Ron.

>> Thank you. I'd like to say I'm watching from the Czech Republic and it's a little bit obvious that the most important question asked tonight, or one of the important questions was from Kendra and asking for information on a report and it seemed to provoke a response which was one of the reports is secret. That to me is not a response to a direct question. It was mentioned in the meeting prior and her next question was one that was a promise of reporting information back to the public when the previous question was not even answered. I think that's typical of what's been going on with this San Onofre plant and others and I wish to say that it's a much better policy to address the public directly and answer directly. Thank you for the meeting. It's a bit of a time-consuming thing to watch but when one question is answered, at least maybe we can make some progress. Thanks, for your time.

>> All right. Thank you for your call, Ron.

>> Why don't you step up and I think what he was driving at was the document that 50.59 is not really a public document. Correct.

>> Right. It's a licensee document that is never been a practice for NRC to make licensee documents public. So they're available to NRC inspectors, we can review them any time, 24 hours a day, we have access to them. And we will review them

and inspect them and in particular the 50.59 documents that you're interested in. They've been gone over with a fine toothed comb.

>> Dave, why don't you tell people what a 50.59 is for anybody else that might be listening on the phone, and then, tell what the NRC does with that information. I mean, it doesn't appear, I'm not making any judgments here but it's not something that happens in a vacuum so I think for the last caller and for Kendra, how does the NRC use this information, and what do they do with it. Maybe you can talk about that.

>> Yes, the regulation 50.59 involves changes to the facility as described in the final safety analysis report. Which describes their facility. So if they make any changes, they're required to do a 50.59 evaluation which is, it evaluates the changes against the criteria in 50.59 to determine whether a license change is required. And it's a 50.59 at the end of the day boils down to a yes or no question. Is there a license amendment required. Yes or no. There's a whole lot to it, it's very complex, but ultimately, it's a yes or no question. It, so, we'll be evaluating each of those changes that they've made to the facility and they've written a 50.59 evaluation and we're going to, we review them. This is what I do for a living. I'm very familiar with it and I will assess whether they made the correct determination and whether, that is does not require a

license amendment. And we're reviewing all of them.

Generally NRC processes and inspection processes are based on a sampling. We're not doing a sampling, we're doing 100% of all 50.59s considering the level of public interest in the subject. So and like a said, not only that, we're reviewing it here and in the region. But there's nothing I can do about it. In terms of what's publically available, that's

>> I think I can help.

>> I was going to add a little something to this.

>> It may be worth while to help everyone to understand, you know there are certain documents and certain things that are submitted, that are required to submit to the NRC. There are reports, anything that we're reviewing. That has to be submitted to us to review. That information becomes docketed. That is information that is put into our atoms and we review it to determine whether it can be any sensitive information. And we'll make available the non- sensitive portions of that you know in our public Adams. When we issue the license to the licensee, they have certain programs that they have to implement. How they implement, the records that they have associated with those implementations, those records have to be available to us when we do inspections to confirm that they're in compliance with their programs. Those are the documents that gets reviewed by inspectors when they go out. But those

are licensee documents. They're licensee records of how they implemented their program. So the 50.59 that Dave is referring to, that's a licensee controlled document that's something that they maintain so it's something we can look at when we go out and do inspections and make sure that they're in compliance with their program. They're following the regulations and remaining that program. So that's, I want to make sure that is clear. In those cases they're not submitted to us. They're not something that has to be submitted and put on the docket in that case. And when we review them, you know, they're not being submitted to us at that point either. We're just looking at them when we're out there on-site and assuring that they're in compliance.

>> Right and I should say that the licensee is not required to submit their entire 50.59 evaluation on the docket but they are required by 50.59 reporting criteria to submit a periodic report that summarizes each and every 50.59 evaluation that they've performed. What was the change, and what was their basis for why this change of facility did not require a license. So that is a required report. It's not that the licensee is required to submit and you will have access to that when they do that.

>> And they're required to submit that on a periodic basis. So, when it's due, then that information will be available in

Adams as well.

>> Right. Understood. My question was specifically related to the fact that a, one of the biggest issues of concern of local residents which I'm sure you have heard over and over again when you've been to meetings in Southern California, that they want an adjudicatory public hearing and the license amendment before these reactors are restarted. I'm sure you're all aware that this issue is before the Atomic Safety and Licensing Board in a proceeding and that there's another issue to retroactively draft a 2206 petition to retroactively address whether or not a 50.59 was required previously. When the drastic alterations were made to the design of the replacement steam generators. So that is why I'm asking that question. Just so that the public can hear what this process is because it did fail drastically the last time that this design was reviewed. So, therefore, with the restart the public wants the assurance of transparency from the licensee. They can say that safety is our top priority over and over again but when they come to a public meeting and say that their data that they're using is a primary premise for the restart plan is experimental data that's never been used in an Operational Assessment and they expect us to simply accept. You know this kind of process, which as Ron said who was on phone is a private process between the licensee and the NRC without the opportunity for that public

transparency, for that critical independent review. So, there for you have to understand the public skepticism about that kind of issue and that these documents should be made public. That we should be allowed to review the 50.59 documents and determine whether a license amendment, whether this impacts the final safety analysis report. Which has been an issue in and of itself. Mr. Palamazona has gotten a few voice mails from me regarding the FSAR for San Onofre.

>> Yes, I have and I'd like to speak-

>> We should talk.

>> All right. Thank you Kendra. Operator do we have anybody else on the phone?

>> Yes, you have a question from Ray Lutz.

>> Hi, Ray.

>> Hi. Can you hear me?

>> We sure can. Go ahead.

>> Okay. Yes, Ray Lutz. On RAI 22, you suggested that finite element analysis was only run on a small section of the generator and my question is, what, and another statement you mentioned that the flowering and the overall problem that happened with Unit 3 wasn't analysis.

>> Ray is this a question for the NRC?

>> Well let me finish please. The, this is regarding RAI 22. Is that fair Enough?

>> Yep.

>> Please don't interrupt me, I'm trying to get this completed and the interruption only makes it more difficult for me to encapsulate my question

>> My apologies.

>> I don't appreciate that. Let me start over then. The finite element analysis was only run on a small section of the steam generator and earlier in the presentation you said that the tube to tube wear was not part of your analysis and that you were eliminating that from the analysis. And my question is, was the flowering type, that is the in line, the in plane movement of the tubes was that part your analysis, your finite element analysis, or was that eliminated? It sounds like it couldn't be because your only analysis of a very small section of tubes and not the entire tube bundle. I do have a follow question. Can anyone answer that?

>> Yes, we'll attempt to answer it. The finite element model of the entire u bend region was conducted and they took advantage of symmetry of geometrical and thermal hydraulic symmetry to model the problem. To do a quarter model of the bundle. So the quarter model of the bundle is representative of the entire bundle region. So the basic model was a 3- D model of the tube bundle, actually representing a quarter of it. But it models the behavior of the entire bundle. For matters of,

that model was run several times but for computational efficiency, the problem was sub divided to consider to work with local models which every so often are recalibrated against a big model. So it's in essence a 3- D finite element analysis of the entire tube bundle.

>> Okay, my follow then is, was the analysis run to accurately predict the tube failures in Unit 3? In other words is your analysis able to predict the failures that occurred in Unit 3 or not?

>> These are the Southern California Edison analysis and they performed AREVA and MHI, performed an analysis to, which does predict the conditions in Unit 3 which lead to the instability and then that model is then applied to Unit 2 to, to predict what is going to happen in the future.

Now, I do have to note that the models were tuned. If you follow the expression, they were tuned to yield the condition that was found in Unit 3. And then you apply, you look at the plant, Unit 2 unique circumstances and the actions that were taken during the outage to Unit 2 and then, using the same model you try to predict what will happen in the future at Unit 2.

>> So the analysis run with, at 100% power would predict the tube to tube wear that we exhibited in Unit 3. Correct?

>> That is correct.

>> Okay. And on page 8 it says deterministic analysis

indicates that AVI will occur, will not occur at 70% power. Can you explain exactly what you mean by deterministic analysis.

>> Yes. That analysis was based on the assumption of no effective supports. So that no, to defend a premise that supports are effective in preventing in plane motion that can lead to fluid elastic instability and tube to tube wear. To defend that you need to 3- D finite element analysis to predict contact forces and gaps and the like. So you can assess the condition of a support and they're ability to prevent lateral movement of the u bends. We're assuming, the calculation you're referring to assumes no supports so one didn't have to do a probabilistic plan element analysis of the bundle to analyze that situation. One just simply solves an equation that predicts stability ratio as a function of thermal hydraulic conditions that exist around the tube. When inputs, you know the various parameters have to be put into the equation, but you're basically solving an equation.

>> Was there any analysis done with the tube supports in place? And the reason I ask that is because the difference between Unit 2 and Unit 3, I understand was that the supports were better contact, closer and more robust contact with the tubes in Unit 3, and yet that is one that exhibited more wear. So do you think it is possible that having the supports in place would exacerbate the fluid elastic instability. And if so,

then why aren't you taking that analysis as well.

>> I didn't quite understand the question. Could you maybe repeat it.

>> Okay the, what you just told me, if I understand it correctly is that you performed a simple solution to an equation that models the entire thing in one simple little equation that says that no fluid elastic instability will occur, given that there are no supports and you're doing that because it's a lot easier to model that way. But have you actually looked into the fact that fluid elastic instability may occur more when the supports are in place. And the reason I say that is because of this. In Unit 3 according to the manufacturing changes that they made over at MHI, they were able to improve the quality assurance levels in order to get the, the contact forces and so forth to be better and more uniform over the whole steam generator than they did in Unit 2. And for some reason that actually exacerbated the tube to tube wear. So that indicates to me that possibly the fluid elastic instability may be exacerbated and increased with more structural support of the tubes. In other words, keeping the tubes in place so that they can't wiggle, therefore making the steam bubbles grow in tighter areas that can't get out, and so forth and so, it may actually get worse. So did you actually analyze 70% power with the supports in place?

>> Yes. Southern California Edison and its contractors did evaluate that case.

>> How did they evaluate that?

>> They evaluated, you know previous discussion we were talking about the full bundle analysis that solves for contact forces and gaps and/or, or gaps that exist at each tube to AVB intersection in the u bend region. That's a probabilistic analysis so at each intersection you have a distribution of possible contact forces and a distribution of possible gaps.

>> Excuse me but that's not what I was asking. I was asking about this question. Does fluid elastic instability occur at 70% power or not? I'm not talking about whether those tubes wiggle and get worn- out by the support structures, which is what you're talking about. I'm talking about the basic assumption that if you run this at 70% power you won't get fluid elastic instability. You said somebody solved a simple equation that eliminated all of the support structures and said it looked fine and I'm asking, did anybody model this with the support structures in place. And your answer so far is no. Is that correct?

>> Yes. This problem have been evaluated several which ways and Sunday.

>> Okay well I want to know exactly how it was evaluated. Don't tell me every which way and Sunday. That's not an answer.

>> Well I was about to go into additional detail.

>> Just tell me how it was evaluated.

>> It was evaluated. One way it was evaluated was to assume no effective supports.

>> I can't know that. I want to know if supports were evaluated.

>> In another case we looked at, estimated the number of effective supports around the bundle and evaluated tubes around the bundle and stability ratios were determined and as Southern California has determined that the stability ratios at each of those locations is less than, in other words, no instability. These calculations are under review by the NRC.

>> All right, Ray, thank you for your questions.

>> I just want to make it clear, you know, that was Emmett who was answering that. He's an NRC staff member who's part of the review team. I believe Mr. Lutz's questions were directed to what analysis the licensee had performed and he was trying to answer those based upon his review that he's done up to this point. And I think, you know, most of the information, or all of the information that comes directly from the, the analysis and such that, that he's reviewing at this point. So I mean, he can only answer to the point that he has been able to get through that information at this point.

>> All right. Thank you gentleman. Is there another

caller on the line?

>> Your next question comes from Donna Gillmore. Your line is open.

>> All right. Hi, Donna.

>> Hi. Having fun?

>> Oh we're having a great time here. We're glad you called.

>> Yes, I live in San Clemente and I manage the San Onofre safety website where my goal is to put all factual information. A lot from you guys. And I have been attending these various NRC meetings I've learned some things. I learned from Greg Warner, the ATPFI leader that you do not steam generators, there's no test out on the horizon and that the only way you know a steam generator isn't working is when it leaks radiation. And then from Art Howl, at the last meeting, I learned that there are some things that have never happened before that are happening with these steam generators. And I know from your website data that Unit 2 has more defects tubes plugged and more worn tubes than all other steam generators combined other than Unit 3. And we have decades of premature wear. And what I've learned today is there's a whole lot of probabilities and predictions. So as a local resident I right now do not have faith from everything that I've heard that you can say with any reasonable certainty, and that's what you're looking for a

reasonable okay to start. There just seems to be more unanswered questions and I do not feel safe from what I've heard so far. And calling AREVA an independent expert when they make money by selling uranium to California does not make them independent on that score alone and I think the NRC asked some really great questions here, but I don't think they're getting the answers they need.

>> All right.

>> How can you be reasonably assured given everything that's happened so far that this plant could ever restart and be safe for the residents.

>> That's the question these gentlemen are going to attempt to answer for you.

>> I think the simple answer to that is we haven't made that determination yet. We're still in the process. This is part of the process is to ask these questions and get the additional information so we can complete our review and income to that, come to a conclusion one way or the other. So we're still in the process. So that

>> Will you be expecting, will you be getting answers from Art Howl brought up about these things have never happened before and nobody knows why. Will those kind of questions that he has, will they be answered before you would give a green light before the go ahead?

>> You know, we're not quite sure what questions you're referring to, Donna, but, you know, we've got it on record that you're asking this, so perhaps we can talk to Art Howl and try to find out exactly what you're referring to

>> Okay, and then, so the issue of the 70%, even after all of these months, the concept of running at 70%, it doesn't sound like you have the information you need to know that. Is that correct?

>> Could you repeat the question please?

>> Given all of the months that have gone by here, and all of the investigations is the fact right now that you don't have the information you need to make a determination if running at 70% is going to make things better or worse? Is that correct?

>> I think what the purpose of this meeting today is to indicate that there is additional information we need in order to complete our review to be able to make a determination in that, on that very question.

>> Okay so the 70% question, even after all of these meeting and audits is still up in the air. Okay, I think I have my answer.

>> We have not completed our review yet.

>> Okay.

>> Thank you, Donna. Do we have anybody else on the line, operator?

>> Morgan Lee. Your line is open.

>> Hello, Morgan.

>> Hi, I have a fairly narrow question. It's about November 30 notice of nonconformance that was delivered to Mitsubishi and this is regarding some mock ups

>> Thank on Morgan is this a question about the content of this meeting, these RAI s or is this a question, is it a question for NRC having to do with this meeting?

>> I just want to know if those mock ups have in anyway to do with the Operational Assessments that are the subject of this meeting. Whether they play a role in this restart plan and the assessment as they are, you know.

>> No one here is quite sure what mock ups you're talking about or referring to, Morgan, but just a second.

>> It was from an October 9th through 17th [inaudible]

>> Yes, my name is Art Holland from region 4 and the inspection report you're referring to was issued by another NRC office but the mock up that's being referred to or is the subject of that inspection report, at least at this point is not the subject of any of the Operational Assessments that were submitted by Southern California Edison.

>> Okay, thanks.

>> Thank you, Morgan.

>> And I think to go back to the previous question, Art just

motioned to me a moment ago that I think what he was referring to at that meeting was the FI induced tube to tube wear and that's what, obviously, that's part, that's a key part of this assessment and our review going forward is looking at that and seeing whether that's, whether that will occur or not. So.

>> All right, do we have another person on the line?

>> Your last question from Gary Hedrick. Your line is open.

>> Hi, Gary.

>> Hi. Thanks, for listening to me again.

>> Yes, sir.

>> As you know I'm founder of Sacramento green and I represent over 2,000 people that live in this area and it's a general question about the fact that the information such as 50.59 information is being withheld from us by Edison and in light of the fact that we've seen how things can go wrong and it's so important to us to have all of the evidence available to us and the question really to Edison and why don't they make this publically available. What are they hiding?

>> Again, okay, that's a question that Edison is here, they're not, they're not a position to answer it, but they hear the question. So I'll say is they'll take it into consideration as they move forward in their plans assessments of what they're doing and their whole business process.

>> I think that would be a huge step forward in order to

raise public confidence in the process and make sure we don't overlook something important. So I hope they'll seriously consider it, and realize that it's really damaging their reputation and image in the public if they don't reveal that stuff.

>> We appreciate your comments, Gary, and thank you for calling in.

>> Thank you.

>> Yes, sir. Anyone else on the line?

>> Not at this time.

>> Well, I hate to say it but all good things must come to an end. So at this point I'd like to ask the NRC if you have anything you want to offer in summary for everything for the day.

>> Just think I want to wrap up what we heard. You know, we heard you know, the information that you're going to be providing to us, that information will be provided by mid- January. We, I think we also indicated and want to make sure it's clear that we will be providing some additional RAIs as will be forthcoming very soon. And we'll continue this process. So, and I appreciate everybody's participate, the question from the public as well and I think with that, we'll adjourn.

>> Yes, thank you everyone, you've been a great audience.

Thank you. As well as those on the phone. Thank you for your questions, your comments. We heard them. They'll be taken into consideration. We can only wish you a very good Christmas holiday from here and we look forward to talking with you again.

Thank you.

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