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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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SUBCOMMITTEE ON PLANT OPERATIONS AND FIRE PROTECTION

+ + + + +

SUBCOMMITTEE MEETING REGARDING WATTS BAR NUCLEAR

PLANT UNIT 2

STATUS OF LICENSING AND INSPECTION

DOCKET NO. 50-391

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WEDNESDAY,

MARCH 3, 2010

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 3:11 p.m., Harold B. Ray, Subcommittee Chairman, presiding.

ACRS MEMBERS:

HAROLD B. RAY, Subcommittee Chairman

SAID ABDEL-KHALIK, ACRS Chairman

J. SAM ARMIJO, ACRS Vice Chairman

JOHN W. STETKAR, ACRS Member-at-Large

SANJOY BANERJEE, Member

MARIO V. BONACA, Member

WILLIAM B. SHACK, Member

JOHN D. SIEBER, Member

ACRS STAFF PRESENT:

MAITRI BANERJEE, Designated Federal Official

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P-R-O-C-E-E-D-I-N-G-S

3:11 p.m.

SUBCOMMITTEE CHAIRMAN RAY: I'm Harold Ray, Chairman of the ACRS Plant Operations and Fire Protection Subcommittee, for operating license review of Watts Bar Nuclear Plant Unit 2.

Other ACRS members in attendance are Jack Sieber, who will be joining us very shortly, Mario Bonaca, Charlie Brown, Sam Armijo, and Said Abdel-Khalik.

ACRS CHAIRMAN ABDEL-KHALIK: Sanjoy just arrived.

SUBCOMMITTEE CHAIRMAN RAY: Sanjoy Banerjee is with us as well. I'm grateful for his joint participation, although that accounts for the slight delay in our getting started with this Subcommittee.

Ms. Maitri Banerjee is the Designated Federal Official for this meeting.

The Subcommittee held a public meeting with the TVA on July 28th last year, followed by a plant tour the same day. We also had a meeting here in this room in the preceding March.

We were briefed about the TVA activities

related to licensing, construction and restart of Watts Bar Unit 2, and received comments and questions from the public.

After that meeting, the members visited the NRC Region II offices on July 30th, and were briefed about the NRC inspection activities related to Watts Bar Unit 2 construction, material condition, and the controls TVA had implemented to ensure quality construction.

The purpose of today's meeting is to get an update from TVA and the NRC staff regarding issues related to the design licensing and construction activities since their July meetings. The objective of this meeting is to gather information, analyze relevant issues and facts, and formulate proposed positions and future actions as appropriate for deliberation by the Full Committee.

This briefing is open to the public, the rules for participation in today's meeting were announced as part of the notice of this meeting published in the Federal Register on February 22, 2010.

We have a telephone bridge line open, and we have members of the public on the telephone line, as we understand it.

To minimize disturbance, the line will be kept muted from this end, that is to say, they can listen only until the last ten minutes of this meeting, to provide an opportunity to the members of the public then joining us through the bridge line who would like to make a statement or provide comments.

A transcript of the meeting is being kept, and I request the participants of this meeting to use the microphones located in the meeting room when addressing the Subcommittee, and participants should first identify themselves and speak with sufficient clarity and volume so that they may be readily heard.

We'll now proceed with the meeting, and this indicates I should call on Masoud Bajestani of TVA, but I perceive we are going to begin with the staff presentation, is that correct?

MR. MILANO: No, sir.

My name is Pat Milano, I'm the Senior Project Manager responsible for the Watts Bar 2 licensing.

I was just going to -- just in case you didn't kick it off right with regard to the agenda, I was just going to say that TVA is going to present

first, followed by the staff, and then our Region II, and again, Vice President for New Nuclear Generation, Mr. Bajestani, is going to make the presentation for TVA.

SUBCOMMITTEE CHAIRMAN RAY: Okay, and before you begin, let me say there are two things, and this is a very short meeting, and I can't account for that, other than that I'm here as scheduled.

So, I'm going to be moving things along, otherwise who knows how long we would be here.

One thing has come up that we are asking everybody, for at least a while, to address, it came up in a completely different context, but I note that it seems to fit here in reviewing our past meeting agendas, and minutes, and so on, and that is, how issues that arise, or have arisen under Part 21, might be addressed in the context of Unit 2. Because of the Unit 1 ongoing operation, my guess is that there's an active Part 21 program that TVA has, and they are well aware of all the items that are identified as part of that program, and you'll tell us how that's considered in the context of Unit 2.

The other thing I would say is, we did, as I review our notes, I'm reminded that we did indicate that schedule was a concern, not a concern

in terms of your meeting schedule, but it was a concern in terms of what effects meeting the schedule might have on the things that do concern us.

I notice that in both the staff and the TVA presentations there's material having to do with schedule. We are interested maybe in the -- as I say, the converse effect of schedule, not are you meeting schedule, but what are the attempts to meet schedule having -- what effects might they be having on the things that do concern us.

And so, when you address yourself to that, be mindful that, you know, that the issue in our mind is the effort to adhere to and meet schedule having any negative consequences on the quality of the work, the start-up testing, and all the other things that you have to do.

Unless the presentations change from what I've seen before, we'll be told you are going to meet schedule, and that always worries me because of the fact that it's very hard to make a schedule in advance of something as complex as this, that you absolutely, positively are going to meet without question.

And so, with those two things, Masoud, would you want to begin then?

MR. BAJESTANI: Sure.

Again, my name is Masoud Bajestani. I'm the VP of Watts Bar Unit 2.

Gordon, introduction?

MR. ARENT: Gordon Arent, I'm the Licensing Manager for Watts Bar Unit 2.

MR. KOONTZ: And, I'm Frank Koontz, a Specialist in Engineering for Unit 2.

MR. BAJESTANI: Again, I appreciate the opportunity to update you on Watts Bar Unit 2, the status of the project, and where we are in the completion. And, I'm going to address the two questions that you brought up.

Let me address, if you want me to go ahead and do that now I can do that.

SUBCOMMITTEE CHAIRMAN RAY: It's entirely up to you.

MR. BAJESTANI: Okay. Under Part 21, we look at any Part 21 that is applicable to Watts Bar Unit 2, and we either process that through the corrective action or operating experience that comes to us.

As a matter of fact, just to give you an example, it was like two weeks ago we got specific Part 21 *** 3:20:17 ***, so we got the data, came

into us, we sent it to our Procurement to evaluate applicability to Watts Bar, and the material that we are purchasing as we go through completion of Watts Bar Unit 2, we will note this issue that was identified in Part 21 through *** 3:12:03 *** is applicable to Watts Bar Unit 2. So, every Part 21 that comes in, we look at it and see whether or not it's applicable. If it is applicable, obviously, we take appropriate action.

SUBCOMMITTEE CHAIRMAN RAY: How do you address the Part 21 issues that may have arisen during the period prior?

As I said, before I speculated, well, you are probably tell me that you had an active program, and those things are considered as well.

MR. BAJESTANI: What we had pointed to the Watts Bar project, Watts Bar Unit 2 project, We had to go look at all historical data, which Part 21 also includes one of those items that we look at. Actually, there are over 30,000 items that we looked, specifically, at historical data from back in the construction days, and once Bar Unit 1 came on line, and anything after Watts Bar Unit 1 came on line, and looked at every one of those items, and again, applicability and what do we need to do for Watts Bar

Unit 2.

So, every one of those items historical is picked up part of the historical data.

SUBCOMMITTEE CHAIRMAN RAY: Thank you.

MR. BAJESTANI: Okay, and I'm going to cover the schedule a little bit later in the presentation, if you don't mind.

Real quick again, I'm going to provide you a brief status of where we are on project completion. On page two, we are going to talk a little bit about the integrated schedule, procurement, engineering, construction, refurbishment. Gordon is going to talk about licensing, and Frank is going to talk about where we are on the IPE and IPEEE, and then I'll come back and talk about again on the Unit 1 and 2 integration and where we are on that.

If you turn to the next page, this is, essentially, our construction completion status schedule. Anything that doesn't have a date, and you can see that by triangle, that's complete. Anything that's got a date, those are the ones that's not complete.

Again, I'm not going to go through a lot of detail here, but again, the Board approved the

project August of 2007. We had the construction reactivation letter, regulatory framework. We developed a lead 0 schedule for the project, and we started the construction in June of 2008, and we are expecting to complete major engineering by end of this month, actually.

SUBCOMMITTEE CHAIRMAN RAY: Could you move ahead to Slide 5 on that point.

MR. BAJESTANI: Certainly.

SUBCOMMITTEE CHAIRMAN RAY: Could you reconcile what you just said with these numbers here?

MR. BAJESTANI: Yes. What I mean by completing the engineering -- major engineering complete by end of March, is all the design output document, which is what we call EDCRs and DCNs. These are the stuff, essentially, the design output document that's issued, it goes into construction, and construction goes to modify the field of data construction.

We are still going to have a lot of engineering staff that's going to be remaining to do remaining programs, calculations, and a lot of -- we have -- when we issued some of this DCR, EDCR design output document we had we called a lot of unverified assumptions. It, specifically, says that I have to

come back on these specific calculations, or on this specific program, remove this unverified assumption. So, we have a lot of work still left after we issue all the major engineering design output documents.

SUBCOMMITTEE CHAIRMAN RAY: Well, that's, I guess, an application of what I should understand major engineering complete to mean, in other words, the reconciliation is that what's on page five here is largely other stuff.

But, gee whiz, these numbers are so out of line with what I would think of as major engineering complete this month, that it was shocking to me.

MR. BAJESTANI: I understand.

SUBCOMMITTEE CHAIRMAN RAY: Is this my definitional problem, is that it?

MR. BAJESTANI: You know, from the construction perspective, construction looks at it, what they need to have from engineering to be able to do work.

And, really, when we say we are looking at completing major engineering, it's what construction needs to complete their work.

SUBCOMMITTEE CHAIRMAN RAY: I'm trying to get this straight.

MR. BAJESTANI: Okay.

SUBCOMMITTEE CHAIRMAN RAY: If you've got unverified or unconfirmed assumptions and/or calculations, how can you release drawings for construction, which may have those unverified assumptions involved?

MR. BAJESTANI: Okay, let me give you an example.

Engineering issued a design output document to be replace a bunch of tables. Okay? Construction takes the design output document, this goes from point A to point B. After completion of this job, what we have is what we call *** 3:24 ***, it basically says what the length of the cable is for the calculation.

You have to take this information back after the work is complete, you already have some idea what it's going to be, obviously, but the actual field data --

SUBCOMMITTEE CHAIRMAN RAY: You are looking for as-built field data --

MR. BAJESTANI: As built.

SUBCOMMITTEE CHAIRMAN RAY: -- to go back and compare with the initial analysis type calculation.

MR. BAJESTANI: Exactly.

SUBCOMMITTEE CHAIRMAN RAY: Do all of these fall in that category?

MR. BAJESTANI: A lot of them they fall under that category, that we have to go back.

SUBCOMMITTEE CHAIRMAN RAY: So, it's taking as built results and going back and comparing them with assumptions.

MR. BAJESTANI: Exactly.

SUBCOMMITTEE CHAIRMAN RAY: Does that deal with mechanical stuff, or stress type stuff?

MR. BAJESTANI: It deals with mechanical, as well as electrical.

SUBCOMMITTEE CHAIRMAN RAY: And, you'll be staffed to handle that --

MR. BAJESTANI: Yes.

SUBCOMMITTEE CHAIRMAN RAY: -- with the same rigor that you had when you developed the main set of drawings.

MEMBER SIEBER: I assume things like piping analysis, seismic supports, and all that, are done as construction progresses.

MR. BAJESTANI: That's correct. Let me just -- I wanted to -- I think I tried to explain it.

MEMBER BROWN: Well, I wanted to,

relative to -- I'm not sure this is related, I think this is related to what you just said, I'm not sure, I'm trying to relate to the mechanical stuff.

Pipes go in, hangers are supposed to be put in certain places, they are rarely ever where you think they might be. So, you, actually, have to lay out, even on the mechanical side, on all the major piping, the high stress piping, and, particularly, if they are off then you have to redo that calculation as well to determine if you still meet all the requirements.

So, all right, I was just trying to get my handle around this.

MEMBER SIEBER: That's usually fit in the field kind of work, where the engineers actually do the job.

MEMBER BROWN: This is not non-deviation type stuff, from what I remember. You don't always get to the place where somebody said they were going to -- they were supposed to be, for whatever reasons, and I think that's what you were driving at.

MEMBER SIEBER: Right.

MEMBER BROWN: Okay. All right, thank you.

SUBCOMMITTEE CHAIRMAN RAY: I hear the

explanation. I have no reason not to accept it, it's just getting my mind around it is a little difficult, because if you had said major design work complete, or something like that, maybe I'd have understood better, but to me to say major engineering work complete, it's hard then to reconcile what you said with this slide five, other than you've provided it, a reconciliation, and I guess we better move on.

MEMBER BROWN: No, I had one other question.

SUBCOMMITTEE CHAIRMAN RAY: Sure.

MEMBER BROWN: If you don't mind.

Some of this stuff will have more priority than others, because if you build and construct you lose access for corrective actions.

Do you call try to assign to reevaluate these various field as built type stuff to see which ones you've got to do first, is that thought process involved?

MR. BAJESTANI: Yes.

MEMBER BROWN: The only reason ask is that I worked on -- we had that problem one time, we'd go back and look and they had already covered it up, so it cost a lot of money to fix it.

MR. BAJESTANI: Yes, we look at every one

of them. If there are issues that --

MEMBER BROWN: You are going to say yes, we'll go on. Harold, we've got a tight schedule.

MR. BAJESTANI: We'll go back to the schedule.

I'm not going to mention major engineering complete, I'm going to say some other work, because I have to think about it.

We have submitted FSAR amendment for an operating license. Some of our major upcoming months, the next one is actually turbine or turning gear, which is coming up October of this year, Unit 2, Integrated Safeguards test, we are going to do this test during the next refueling outage, because this test, actually, can be done only when Unit 1 is shut down.

We are also going to do next thing is primary hydro, then we are going to fill the ice condenser with ice, and do the hot functional test, and then ready for fuel load.

Any questions? Okay.

Next page, page four,

Under procurement side, this was also something that we discussed last time, just real quick, Bechtel oversight of procurement and supplier

quality. Obviously, because of some of the issues that we have had in industry, specifically, on fraudulent material, and counterfeit, we have actually trained our QC inspectors, we have put those requirements, what to look for in our process and procedures.

And, what we have done, actually, we have done over 281 visits to date, with 168 report issues, and this is for different vendors that we are buying the materials.

And, we have, actually, identified issues during some of this short surveillance that we brought it to the vendors' attention, and got it fixed.

Also, the ASME QA program audit for the new suppliers, again, Bechtel has done an audit.

And then, on top of what Bechtel is doing, TVA, we have our own TVA oversight of the Bechtel QA performance, and again, we, actually, participate in some of the shop surveillance. We, actually, go to -- TVA, actually, watched some of the factory acceptance tests. We look at -- we have done actual independent review of some of the receipt inspections, and also audit of the ASME procurement and material storage.

And, we do find issues, and we fix them as we go.

Next page, engineering. Some of the stuff that we look at right at the beginning, whatever we do to make sure that we maintain the design margin, and if there are opportunities that we can, actually, gain margin, we've been doing that. Specifically, we are replacing all eight ERCW pumps, these are the essential clean water measures, we've got cooling water, essentially.

Overall, 60 percent complete, design modification 64, calculations 72 percent. The CAPS and special programs, which are 29 programs, over 60 percent complete. And, the data, as far as quality of the records, is all retrievable and legible, and we haven't had really any issues from the construction days, nothing major.

Quality of the engineering, so far again, what we do, we, actually, monitor the number of engineering errors, number of field changes that are caused by construction, because they can't implement it, so we monitor all this information, and we look at the trend, and feed that back into the designer to make sure that we don't make the same mistakes, you know, over and over.

Overall again, the quality of engineering has been pretty good.

I put a few charts over here to show you where we are on some of the major engineering output document. This is, actually, some of the engineering output documents that we issue, and you can see pretty much we are staying with the schedule.

MEMBER BONACA: What are the yearly -- number of EDCRs.

MR. BAJESTANI: Number of EDCRs, packages that's issued from engineering.

MEMBER BONACA: Is that per week?

MR. BAJESTANI: That's, actually, per week, per week issue number. On the left is per week, and the right would be cumulative.

MEMBER BONACA: Cumulative, okay, good.

SUBCOMMITTEE CHAIRMAN RAY: So, some time this month you are going to achieve a level of production considerably higher than you've achieved so far.

MR. BAJESTANI: Yes, and let me also explain to you why we end up, actually, going to see other engineering firms, so besides our main engineering, which is Bechtel, we have gone, actually, to three other major engineering, and they

are doing, actually, packages for us. So, we have got quite a few people to be able to accomplish what we are saying here. So, this is not just Bechtel to perform engineering output documents.

Construction, next page, overall a little bit over 23 percent complete, focusing on the refurbishment and bulk work. Quality of construction, just give you some data, data points under a number of welds that we have made so far, the weld reject rate has been less than 1/2 a percent. So, it's been pretty good.

Under critical path, safety injection system, chemical and volume control system, plant computer, and component cooling system, every one of these systems, essentially, is tied to material right now. Like for safety injection, chemical and volume control system, and component cooling system, they are all tied to ASME Section 3 valves that we are purchasing, and they go along with material.

MEMBER BANERJEE: Where are those valves coming from?

MR. BAJESTANI: They are coming from the different vendors, but it's very limited, you know. some of them are coming from Flow Serve, we've got some *** 3:33 ***, we've got a few other companies,

but they are a very limited number of suppliers.

MEMBER BANERJEE: I was at a meeting yesterday where this was discussed by a couple of Senators. It was interesting to hear that.

MR. BAJESTANI: Some of the ASME Section 3 valves, their lead time -- when we put the pressure -- from the time we put the pressures over there it's sometimes 52 weeks, actually.

We are on track to complete the construction activities, and ready to go to fuel by April of 2012.

Next page will give you some idea about some of the bulk work, like the hangers. These are the 7902, 7914, this is after a number of the stress analysis that we have done, and the walk down that we have done, we came up with a number of modifications. So, this is -- again, this is changing as we do more analysis, but this is a forecast, actually, what we have to do to get all the support modifications complete.

SUBCOMMITTEE CHAIRMAN RAY: Well, a forecast of what you have to do, I understand.

MR. BAJESTANI: What we have to do.

I guess this is probably time to address your second question under schedule, and, you know,

when we developed -- when we went through the *** 3:35 *** to identify the scope, and really the schedule and budget for this project, we spent a lot of time up front, and we had close to 100 engineers that looked at the material, looked at all the calculations that we need to do, the work that we need to do.

We set aside a lot of contingencies, essentially, for breakage, for -- to make sure, bottom line, that we have for breakage, really, we didn't put -- let's put it this way, I'm just going to tell you that the 60-month schedule that we put in is not an idealistic schedule. There are a lot of times that we put in for breakage issues that comes in that we need to deal with.

So, besides, you know, the fact that we have oversight on oversight, okay, we stressed to everybody about the quality. Everybody understands that quality comes first. Everybody understands that at the same time we have to have a schedule. Okay.

So, the schedule is there, everybody knows what the schedule is, everybody knows what the quality is, and the thing is, everything that we do on safety related we have a QC inspection that we have to do. We have a quality assurance survey, we

come back after the work is done, we sample some of the work to see if even if after the work has been completed to see if we still need other design specs, the vendor specs, the construction specs, and then the next thing is, obviously, all the testing that we are going to do to prove what we have, actually, installed meets the design output document with respects to flows, pressure, temperature and so on and so forth.

So, from the schedule side, and looking at the quality, we are not really seeing anything that's negative that tells us that the schedule is the main driver, and we are getting some poor quality items.

SUBCOMMITTEE CHAIRMAN RAY: You've got 13 months til the integrated safeguards testing.

MR. BAJESTANI: Right.

SUBCOMMITTEE CHAIRMAN RAY: How much flow is there in the critical path to that date?

MR. BAJESTANI: Right now, the schedule that we have, actually, that we review on a daily basis, shows November of 2011. Again, we are not looking at -- this is the present schedule, this is not the 60-month schedule that we've been talking about.

Today, if you look at where we are, and how much flow we have with respect to the schedule of April of 2012 for loading fuel, the schedule shows us right now that we are in November time frame, 2011, loading fuel.

SUBCOMMITTEE CHAIRMAN RAY: Let me ask you about integrated safeguards testing, I'm trying to follow what you are saying.

You are saying you can't associate any float in the schedule with the critical path between now and the safeguards testing. It's at the end of the schedule, basically.

MR. BAJESTANI: Right.

SUBCOMMITTEE CHAIRMAN RAY: So, if that date slips, you've got a problem with Unit 1, because Unit 1 has got to be in an outage condition.

MR. BAJESTANI: That's correct.

SUBCOMMITTEE CHAIRMAN RAY: And, do you have any float in that?

MR. BAJESTANI: Okay, there are things that we have to do during next refueling outage. Okay?

Integrated safeguards is one.

SUBCOMMITTEE CHAIRMAN RAY: Right.

MR. BAJESTANI: Then we have some flow

balancing that we have to do during that time, again, to require shutdown condition.

So, if we can't get this integrated safeguards test done during this refueling outage, it's going to push the schedule.

SUBCOMMITTEE CHAIRMAN RAY: Well, I understand, and it's really not pertinent to the things we need to be concerned about, other than as this issue that you are discussing might affect things that we are concerned about. That's what I'm saying.

So, as a way of trying to get at that, I'm just trying to find out, recognizing that Unit 2 and Unit 1 have a tie at that point in time, do you have any float to that point in time, on the critical path?

It's okay if the answer is no. I just --

MR. BAJESTANI: Well, I really can't tell you that -- the reason I'm saying that is, I haven't looked at it with respect to, really, there are a lot of systems that we have to get complete before, you know, we get, obviously, to that integrated safeguards test.

And, right now, when I look at the schedule, it shows that it meets -- but I can't tell

you exactly here's the float time.

SUBCOMMITTEE CHAIRMAN RAY: Okay. It's that date that I would be more concerned about than fuel load.

The issue is, when you've got something else going on next door, that says I've got to be ready to do this at this point in time, what's my chances of being ready? That's all I'm asking.

And, I don't mean to belabor it. Let's just go on. I'm just trying to illustrate the point that I'm -- where I'm coming from.

MR. BAJESTANI: Yes, we understand that, and we understand that, you know, we don't make some of this dates, it is going to push and, obviously, we are not going to push the refueling outage, because we are going to have to go through the refueling outage, it is going to be -- we are going to have to find another window, essentially, to do this.

SUBCOMMITTEE CHAIRMAN RAY: Yes, either that or delay the -- you know, back off Unit 1 until you can delay the refueling date. Whatever you have to do, that's your business.

But, it does seem, from where I'm sitting, that that's the date that you are most working against right now, and the question is, how

much is that affecting how you get things done.

I would surmise quite a good deal.

MS. BANERJEE: Harold, if I may say something.

SUBCOMMITTEE CHAIRMAN RAY: Sure.

MS. BANERJEE: We can take this as an open item, or anything else that you want us to follow up on, and work with the staff and the applicant.

SUBCOMMITTEE CHAIRMAN RAY: Well thanks. I don't think I want to make an open item out of the schedule. That's really not our business. It's only a matter that, you raise the issue of schedule, it, naturally, then causes us to think about what effects are the schedule having on the things that we are reasonably concerned about. It's not meeting schedule, that's your business, not ours.

MR. BAJESTANI: And again, we have other options that we have to sit down internally to discuss, whether or not we want to extend the refueling outage. I mean, there is a whole bunch of other options that we can sit down and look at.

SUBCOMMITTEE CHAIRMAN RAY: I understand.

MR. BAJESTANI: You know.

SUBCOMMITTEE CHAIRMAN RAY: I understand.

I don't expect you to say that there's a problem here. I'm just trying to use your own communication to us as a way of asking the question, how seriously is the schedule pressure affecting what else you have to do, and it looks like it's a pretty significant factor, just viewed from my far distant position here.

So, why don't you go ahead.

MR. BAJESTANI: Okay.

MEMBER SIEBER: Well, let me just add one thing.

Schedule pressure always is pressure on the quality of work. For example, if you are rushing to finish a lot of engineering jobs, what you end up with is a pile of what we call ECNs, engineering change notices, which is corrections of mistakes, and so forth.

And, I think that' where the attention needs to be paid, is keeping the engineering so that the engineering quality is assured, and that quality assurance, and quality control of the construction project is appropriate for the safety level that you are trying to achieve.

And, another way to look at it is the accident, industrial accident rate of the craft

workers. You know, you want to -- you want to look at all these indicators to determine, are you getting the most out of your workforce for the goals that you are trying to achieve, and when you are all done do you end up with a quality project.

MR. BAJESTANI: Right, and that's really, again, I keep going back to some of the quality of the construction, and quality of the engineering, you know, just looking at the weld rejects, we are looking at industrial safety, how we are doing that, we've got a whole bunch of different indicators that are really telling us that the schedule pressure is not really causing, the schedule itself is not causing adverse impact.

SUBCOMMITTEE CHAIRMAN RAY: That's good.

MEMBER SIEBER: Okay.

SUBCOMMITTEE CHAIRMAN RAY: It's something we want you to be aware that we are interested in. If this unit was there all by itself, you'd do the integrated test when you got ready to do it, but you've got another unit that you've got to do it when it's ready to do it, and that's a constraint on what you've got to do for the reasons that Jack said and so on, it introduces another factor into what happens.

So, with that all having been said, I think we better proceed.

MR. BAJESTANI: Next page talks about the refurbishment program. Essentially, the program is broken out into two separate procedures. One is in the active, and the other one is on the passive components.

On the active -- on the passive components, which we have a process procedure that specifically tells you, basically, what to look for. Here is the form, after you've done all this you look at any -- anything, basically, that tells you whether or not you have any type of degradation, and how we can -- how to mitigate it, and the bottom line, at the end it comes in and you have evaluated the system, and the system meets the design basis requirements.

On the active components, again, we are replacing a lot of active components that we cited, just based on the business case, and some of them, actually, that we just can't get the parts, we decided to go ahead and replace some items and refurbish them. There are, what, 1,700 to 2,000 items that we decided just to replace, and another 4,000 items that we, actually, are refurbishing, and

that's, basically bringing them back to the vendor specifications, you know, replacing soft part materials, and replacing packing, replacing whatever it needed -- whatever material that has certain requirements as far as aging and susceptible to aging, we go ahead and change out to bring it up to the vendor spec.

Gordon, on the license?

MR. ARENT: Again, I'm Gordon Arent, I'm the Licensing Manager for Watts Bar 2.

We've completed the final safety analysis report and the technical specifications for Watts Bar Unit 2, with the exception of one subchapter, which is 2.4 on hydrology.

Hydrology has been being reevaluated by TVA for probable maximum flood.

You may have heard that at some of the other subcommittee meetings for Bellefonte 3 and 4, so we've been involved in that process, and we expect to complete that for Watts Bar 2 here in March.

Emergency planning, we have submitted a template for the emergency action levels for Watts Bar 2. That was submitted in March of this year.

As engineering completes, we will finalize set points, numbers, and things in that

document, and that will be finalized here, again, in March.

Security plan, we did submit a cyber security plan for Watts Bar 2, and are currently completing cyber security evaluations on Watts Bar 2, in support of the new rule.

In addition, for the new rule on overall security plan, we will make a submittal in March of 2010, along with the remainder of the industry.

Quality assurance program, we've completed that. That's been in place, and again, that's a program that's the same program that's used on Watts Bar Unit 1.

Final environmental impact statement, that's been submitted, and we are in the RAI, request for additional information phase, and we are finalizing requests for additional information, and should have that completed here in March.

Special nuclear material license was submitted in November of last year. We need that to be able to acquire fuel for Watts Bar Unit 2. We gave up that license originally back in the '90s for Watts Bar Unit 2, so that has been submitted, and we expect a site visit some time in late spring from the NMSS Branch.

And then as Masoud mentioned, the CAPS and special programs, of the 29 programs we have completed three of those programs, soil liquefaction, concrete quality and seismic analysis, those three programs have been completed, and we've got a number of programs that are currently under inspection by the Region, as we move forward with completing both engineering and construction on the site.

Interface remains good with the staff. We've gotten a lot of assistance from them in moving forward with our reviews, and we remain on track for licensing.

Any questions?

Okay.

MR. KOONTZ: I'm Frank Koontz. I'm going to cover a couple special topics, just to update the Committee on what we did for the individual plant examination.

You may remember, this all stems from a requirement of the NRC in Generic Letter 88-20, and it was to assess whether plants had specific vulnerability to severe accidents.

A lot of the requirements predated people doing a lot of PRA-type analyses, but what we chose to do to address this requirement was to go back and

do a major update to our PRA model that we had for Unit 1, and we converted it to a dual unit model and did an update on it.

Our criteria was to comply with the ASME PRA standard, at least the appropriate sections for a full powered risk assessment, and also comply with the appropriate sections of Reg Guide 1.200 Rev. 1, for the full power PSA.

The new model represents both Unit 1 and Unit 2. It's a dual unit model. To give you an idea of some of the work that was required to do that, our original model was a RISKMAN model, which is a proprietary code originally developed by PLG for doing PSA work.

We converted to a CAPTA model, which is an EPRI code for risk assessment, and it seems to be the industry standard, it's also used within the NRC. So, it enhances communications between us and the Region when we have PSA-type issues, so they can see what the model is and run it on their code.

We updated it, updated the Unit 1 portion of the model. We also added Unit 2 into the model. We updated the human reliability analysis. We updated the systems analysis. We did a success criteria update. We updated the initiating event

database for the model. We updated the systems models. We assured that we had the appropriate modeling for shared systems, since we were doing a dual unit model we wanted to make sure that we had the common systems modeled appropriately for two units.

We did the system dependency update. We did a level two update. We did a data update. We did a containment model update, using the latest version of MAP, at least the one we had was 4.0.7, and we did an internal flooding update.

We had a contractor do the majority of the work. It involved over 30 of their personnel in doing the work. We also had probably over 15 people from the TVA staff involved, including our risk assessment people out of Chattanooga.

We also involved our pre-op and systems people in doing walk downs in the plant, provide data for the model, and we involved our operations folks when we did the human reliability analysis with interviews and discussing procedures.

It required about 40,000 manhours worth of work to do the update, so it's a pretty major update.

MEMBER BONACA: These are internal

events, right?

MR. KOONTZ: That's correct.

MEMBER BONACA: Okay.

MR. KOONTZ: The IPEs were internal.

MEMBER BONACA: *** 3:51 *** rates, I mean, it will be on the requirements of IPEs, so you have a full PRA.

MR. KOONTZ: Yes, this is an update to a full PRA, yes.

What we were using it for was to submit it as our individual plant examination, but it is a full PRA update.

If you flip over to page 12, you can see some of the results. I've added in here the pie chart for Unit 2, just to give you an idea of some of the metrics that everybody is interested in. The total core damage frequency for Unit 2 turned out to be 3.28E-05 per reactor year, and the large early release frequencies down at the bottom of the chart there, it turned out to be 2.6E-6.

As a comparison, the same model run on Unit 1, there is a little bit of asymmetry between the units. For Unit 1, the core damage frequency is 3.69E-5, compared to the 3.28, and the Unit 1 large early release frequency is 2.69E-6 compared to the

2.62.

From the update, our previous model, when it was just a Unit 1 only model, the core damage frequency was down around 1.26E-5, so it went up by a factor of about 2.5, but it was a major upgrade in the area of the loss of off site power modeling. We implemented some new EPRI guidance in that area, which divides loss of off site powers off into grid centered, plant centered, and weather related, and also the internal flooding model was significantly enhanced compared to what we had in the original Unit 1 only model.

SUBCOMMITTEE CHAIRMAN RAY: This is internal flooding then?

MR. KOONTZ: This is internal flooding, yes, central R cooling water, dmin water, pipe breaks, high pressure fire protection, water, we did a lot of walk downs in the plant to look at piping in the rooms.

MEMBER SIEBER: Just running through those numbers in my head, it would appear that your containment capability from Unit 1 to Unit 2 is slightly different.

MR. KOONTZ: Well --

MEMBER SIEBER: The LERFs are not in the

same -- they are off by about 10 percent.

MR. KOONTZ: Yes.

MEMBER SIEBER: What's the reason for that?

MR. KOONTZ: I'm not sure what the reason for the LERF being approximately the same, but the CDFs being a little bit different.

MEMBER SIEBER: Yes.

MR. KOONTZ: But, they are both about a factor of 10 for the containment.

MEMBER SIEBER: Yes.

MR. KOONTZ: Right in that range.

MEMBER SIEBER: But, the containments are identical, right?

MR. KOONTZ: The containments are identical.

MEMBER SIEBER: So, I'm not sure why the numbers shouldn't be identical.

MR. KOONTZ: Where we see the most asymmetry in the model is that we have a component cooling system that's shared between the units, and it has three heat exchangers that have to be shared between train A, train B, and then both Units 1 and Unit 2.

MEMBER SIEBER: Okay.

MR. KOONTZ: And, some of the alignments there tend to be a little bit different. That may also factor in to the challenges on the containment, but I'd have to go back and look.

MEMBER SIEBER: I notice the electrical seems to dominate your CDF more than I've seen in other plants.

MR. KOONTZ: Yes, and --

MEMBER SIEBER: Why is that?

MR. KOONTZ: -- part of that -- well, there's three things. One we are still looking at, to see why it is more dominant than what we'd seen in the past, but one thing we noted is that this new EPRI model does not credit recovery as much, electric power recovery, as much as the old model did, because it divides it off into these three categories, and then it's got, depending on the initiating event, different recovery factors from being able to recover the off site power.

The second thing is, under the RISKMAN model, you would have seen a larger piece of the pie chart here would have said small look, particularly, at like non-isolable small LOCAs, which are really reactor coolant seal ruptures, and what happens in this new model under CAPTA, is all of that small LOCA

stuff gets shifted over into whatever the initiating event was, the true initiating event. And so, our small LOCAs get dumped either into loss of ERCW or loss of off site power. And, those fractions of the pie then grow, because they are pulling in all these small LOCAs that under RISKMAN were shown separately.

MEMBER SIEBER: Okay. Now, you used RISKMAN for Unit 1.

MR. KOONTZ: We use RISKMAN currently for Unit 1, but this new model, under CAPTA, is both a Unit 1 and a Unit 2 model, and so we will start using this model for both units.

MEMBER SIEBER: And so, these numbers reflect two different models? The numbers you told us verbally.

MR. KOONTZ: The numbers I told you verbally, I might have confused there a little bit, but the core damage frequency, for example, of 3.28 for Unit 2, with the same Unit 1/Unit 2 model, is 3.69E-5 for Unit 1. So, 3.69 versus 3.28, Unit 1/Unit 2.

MEMBER SIEBER: And, both of them are --

MR. KOONTZ: Both CAPTA.

MEMBER SIEBER: -- they are -- okay, they are not -- RISKMAN is no longer involved in either

one.

MR. KOONTZ: Right.

MEMBER SIEBER: Okay. Well, that would be interesting to examine that in more detail.

MR. KOONTZ: Yes.

MEMBER SIEBER: But, that's really not our job, but, perhaps, it's the staff's job.

MR. KOONTZ: Yes.

MEMBER SIEBER: Do you plan to have a peer review?

MR. KOONTZ: A peer review has already been conducted, and we'll talk about that on the next slide, I think.

MR. BAJESTANI: Next slide.

MR. KOONTZ: Yes, we've submitted this to the staff for their review already, and they've got it in their hands.

Just to address your subject of peer review, on page 13 we did conduct a peer review back in November of last year. We had seven peer team members. We had utilities represented, Duke Dominion and Exelon had participants in the peer team. From the industry, we had a Westinghouse member that was in dependent of our contractor, Westinghouse turned out to be our PSA contractor also. We had SAIC, and

we had an independent consultant that came in to do the review on the flooding.

MEMBER SIEBER: Okay.

MR. KOONTZ: And, we had one foreign participant, Korea Power Engineering sent an individual over, and he participated in the peer review also.

The peer review, they did a pre review back at their place, we sent them all the system notebooks and all the documentation for the PSA, and they spent quite a bit of time going over it. They came to the Chattanooga Corporate Office, and we entertained them down there for a week, just going through all the details and answering all their questions, and then, of course, we did a post review, where they went back and assessed the findings.

Out of the ASME standard, they have what they call high level requirements and supporting requirements. And, what they review the PRA to is really the supporting requirements, the lower tier, and then they can make an assessment of the high level.

But, there's 326 supporting requirements that applied to our PSA. 86 percent met -- fully met

the category 1 or 2 for risk informed submittals. They have category 1 is lesser, and then category 2 is good for risk submittals to the NRC. 6 percent met category 1, most of those were associated with LERF, and they are more application specific, in other words, when the NRC reviews that category 1 may be acceptable for risk informed submittals, as long as you talk about LERF with respect to the actual submittal you are making, the application that you are going in for.

And, we had 8 percent where we had the supporting requirements were not met. That ended up to be about 26, 11 of which were associated with this new flooding model. And, in general, just to give you an impression, the flooding model was deemed a little bit conservative by the peer team, and they thought that we could probably trim the flooding part of the pie chart down, if we'd go in and put, you know, more detail into the flooding model.

MEMBER SIEBER: I can testify from experience from experience that flooding can be a real issue.

MR. KOONTZ: Yes. Well, some of it was interpretation. The EPRI guidance gave various pipe sizes and said, use this. We thought it was

indicating use this flow rate.

The peer team member indicated that his impression was, is that the EPRI guidance was really saying, this would be the maximum flow for that pipe, but you can go calculate a specific flow for your plant.

And so, in some cases we over estimated the flows, you know, for the various pipe breaks.

The other concern he had was, is that we assessed each of the pipe breaks in the various rooms, and we looked at spray effects and submergence effects, and we looked at the worst case pipe break for where it would go in the plant. In other words, it would go over the floor, over the curb, out the door, down the hallway, down a stairwell.

The standard, if you read the standard, it sort of indicates that you should do that for each line break in the room, not the most bounding one.

MEMBER SIEBER: Right.

MR. KOONTZ: Even though it may go the same place, and, you knwo, as the bounding one, so he had a finding against that.

So, that's to give you an idea of what some of the peer team findings were.

MEMBER SIEBER: Do you have the

corrective action program for the 8 percent that the peer --

MR. KOONTZ: We put them in our PSA database for improvements. We have a database, a living database that we keep.

MEMBER SIEBER: When will that happen?

MR. KOONTZ: Well, that's a good question. Right now, I was telling Gordon this morning that one of the things they are doing is, they are taking this model and converting it to a Sequoyah model, and as part of that effort, with another contractor and the Chattanooga staff, will be doing some of these peer team improvements also, and then rolling it back into the Watts Bar model, and I don't have a date for when that will all be completed.

MEMBER SIEBER: It will be before fuel load?

MR. KOONTZ: I would think it would be before fuel load.

MEMBER SIEBER: Okay, let's not write it down as a commitment.

SUBCOMMITTEE CHAIRMAN RAY: As a time, I'd like to see if you guys can finish up in 15 minutes.

MR. KOONTZ: No problem.

Final peer team report was received. Like I say, we did evaluate the facts and observations.

We worked with the PRA contractor for resolving the important findings before we sent it to the NRC, and we talked about the over conservatism.

They did have some complimentary comments about the model, the documentation was thorough, and detailed, and organized.

Page 14, this is -- now we are off from individual plant evaluation to individual plant evaluation for external events. So, this would be the floods from the dam, and the tornados, and seismic issues, and things like that.

SUBCOMMITTEE CHAIRMAN RAY: And fire.

MR. KOONTZ: Yes, and fire is another big one in external events.

MEMBER BANERJEE: Can I just ask you about this --

MR. KOONTZ: Sure.

MEMBER BANERJEE: -- floods, the problem was the methodology with Bellefonte, right, and you were going to develop a methodology which the NRC --

MR. KOONTZ: Hydrology study.

MR. ARENT: Yes, it was originally identified during a QA inspection.

MEMBER BANERJEE: What are you doing about it for Watts Bar?

MR. ARENT: We, actually, went back and did a whole set of new calculations of the entire river system.

MEMBER BANERJEE: Okay.

MR. ARENT: So, we looked at it for how it would affect Watts Bar, how it would affect Sequoyah, and how it would affect Bellefonte.

And so, we've done an aggregate calculation.

MEMBER BANERJEE: That's completed also for Bellefonte now?

MR. ARENT: Yes, yes, and that was submitted, I believe within the last week or two.

MEMBER BANERJEE: Oh, because we haven't seen it.

Okay, so that answers that question.

What are you doing about GSI-191?

MR. KOONTZ: In Unit 1, we installed some advanced sump screens. We went from about, I'll say 200 square feet of sump screen area to 4,600 square feet of sump screen area.

MEMBER BANERJEE: Down stream effect, what are you doing about down stream effect?

MR. KOONTZ: Down stream into the reactor vessel? We were using the Westinghouse methodology for assessing the down stream effects.

MEMBER BANERJEE: That's still an open issue.

MR. KOONTZ: I understand that that's still an open issue with the NRC, so we'll follow that and so whatever corrective actions are necessary.

We did, like I mentioned, we are a --

MEMBER BANERJEE: You are a low fiber plant or not?

MR. KOONTZ: -- well, Unit 2 will be, Unit 1 had some 3M fire wrap installed to protect some specific conduits, and they are 3M fire wraps made of a sheet of stainless steel with a matted material, and it's mostly vermiculite, is what it is, with glue. So, that's some fiber there.

And then, we had some ***4:04 *** K, which is a microtherm insulation that we used for separation of hot pipes and conduits. And, we've gone through and -- other than that, we are a mirror insulation plant. So, all of the steam generators,

and all the loop piping, is mirror insulated.

We've gone through and we've tried to minimize ***4:04*** K to the maximum extent possible. We've taken it out everywhere we can get it out. And, the remaining thing that they are looking at is the 3M issue.

MEMBER SIEBER: I understand vermiculite is an EPA listed hazardous material, is that true? You ought to check.

MR. KOONTZ: Yes, I don't know. That's an interesting question. I know that they used to use it as insulation in their attics.

MEMBER SIEBER: WR Grace Company mined it in Montana.

MR. KOONTZ: Sodium tetraborate is what we have in the ice for a pH buffer.

MEMBER SIEBER: Right.

MR. KOONTZ: And, it seems to be pretty good as compared to trisodium phosphate, and some of these other chemical effects the people have had.

MEMBER SIEBER: Yes, you are right.

MEMBER BANERJEE: Well, you know that this issue --

MR. KOONTZ: It's still open, we understand that. We were talking with staff a little

bit about it before we came in here.

The strainers have already been designed for Unit 2, and they mirror --

MEMBER BANERJEE: What type is it?

MR. KOONTZ: -- it's an AREVA strainer design, made by PCI, one of their contractors, and they consist of pancakes, they look like square pancakes that are perforated screens, and they are on a core tube. And so, there's multiple of these pancake strainers going up the core tube, and then we have various stocks that feed into it, and then go then down into the sump.

MEMBER BANERJEE: Yes, the issue, as you know, there is, of course, when you stop to block these --

MR. KOONTZ: Yes.

MEMBER BANERJEE: -- then what happens is, your approach velocity --

MR. KOONTZ: Changes.

MEMBER BANERJEE: -- changes.

MR. KOONTZ: Right.

MEMBER BANERJEE: It's no longer the approach velocity into the pancake, but into the whole stack.

MR. KOONTZ: Right.

MEMBER BANERJEE: And, it's a nightmare when you put them next to each other in a sump, you know.

MR. KOONTZ: Right.

MEMBER BANERJEE: That's another issue.

MR. KOONTZ: Yes.

MEMBER BANERJEE: ***4:06*** basically, that people do protypic testing of these types.

MR. KOONTZ: Right.

One of the things we did when we did our flow testing up at the lab, is after we got the flow testing done we did sort of an unofficial test, where we just took all the fiber material and everything and just dumped it on the strainer, to see what difference it would make, and we still got acceptable results, even dumping the stuff right onto the strainers.

MEMBER BANERJEE: Relatively low fiber.

MR. KOONTZ: Yes, compared to others that have Nucon for their primary insulation.

SUBCOMMITTEE CHAIRMAN RAY: Let's move on.

MR. KOONTZ: Okay. IPEEE, the generic approach is to follow the guidance associated with generic Letter 8820 supplements 4 and 5, and NUREG-

1407. It's a focus scope. We do a seismic margins analysis to identify seismic vulnerabilities, and we are using the EPRI FIVE methodology to identify the fire vulnerabilities. That's the same thing.

MEMBER SIEBER: Now, your seismic hazard analysis is complete?

MR. KOONTZ: Pretty close. The --

MEMBER SIEBER: Well, the question I will have is, how do you do the seismic design of piping supports if you aren't sure what the frequencies and magnitudes of seismic events are?

MR. KOONTZ: Yes. What you do in this seismic margins analysis is, we go out there and we identify a minimum capability, I guess they call it.

For example, our safe shut down earthquake is around .18G, and our minimum capability, our target here is we are shooting for like .3G. So, what you want to do is show everything is good, at least to that criteria.

MEMBER SIEBER: But, that's a gamble.

MR. KOONTZ: Well, what we found on Unit 1 is some of the worst case components were the screen wash pumps, and they were above that capability. They were .36G.

MEMBER SIEBER: Okay.

MR. KOONTZ: So that, Unit 1 came out good, they weren't able to identify anything back when we did it a long time ago.

MEMBER SIEBER: Just so you know, it's a gamble.

MR. KOONTZ: Yes.

MEMBER SIEBER: Okay.

MR. KOONTZ: Now, they've completed the analysis for the seismic margins part, to the point where they've written the draft reports, and will be reviewing those internally, and getting those to Gordon probably around mid month for submittal later this month.

MEMBER SIEBER: Okay.

MR. KOONTZ: So, they are pretty close on that.

The one that's coming up to the back end a little bit is the EPRI FIVE methodology, and we're working our way through the fire induced vulnerability evaluation right now.

MEMBER BONACA: Yes, one comment to the fire, you know, that's a pretty old standard, 1992, and one concern, well, I know that the Browns Ferry fire analysis does not include fire induced ***4:08*** of the equipment. And so, that makes it,

I guess, NRC has a rule that says if you don't treat that you cannot use it for licensing applications, so you may want to look at it.

MR. BAJESTANI: Our analysis, actually, we are getting ***4:08***

MEMBER BONACA: Very good.

MEMBER BANERJEE: You have no issues with Appendix R?

MR. KOONTZ: Well, we're working through all the Appendix R analyses right now, identifying which cables need to be relocated, looking at manual actions.

MR. BAJESTANI: Yes, we looked at, actually, the number of the manual operated action that we have on Unit 1 versus bringing Unit 2, and we have decided to replace a lot of cables. We had a lot of cable modified the logic and the circuits, so the number that we are coming up, the number of manual operated action is significantly less than what we had on Unit 1.

MR. KOONTZ: Well, I think you gentlemen have asked a lot of good questions.

Moving on to page 15, I think we've probably covered most of this.

The IPEEE report will be used -- the Unit

1 report will be used as a baseline for writing the Unit 2 report. Like I said, we've gone through all the new analyses, and we're finishing up the FIVE analyses right now for Unit 2.

We've used plant corrective action programs where they were needed. For example, we've used the civil seismic caps results, our hanger analysis update program, integrated interaction program, and ESQ program.

We've done walk downs over in Unit 2 in the common areas, associated with the IPEEE, looked at fire compartments. We've looked at the ignition frequencies and some of the sources in each of those compartments.

Unit 1, we didn't identify any specific vulnerabilities when we did that analysis, except for one, and it was associated with a tornado missile that could enter through a construction opening that, actually, happened to be on the Unit 2 side.

So, we protected that construction opening back a long time ago, when we finished Unit 1, so it's done for Unit 2 already.

So, there shouldn't be anything there.

And, our goal is to submit this March of this year, for the staff for review.

We will come back later. This is an as-designed report, so in other words we are doing it on our as-designed drawings, and we will come back later in August of 2011 and do an as-constructed version of that for the staff.

That's all I have.

Masoud?

MR. BAJESTANI: Okay, real quick on Unit 1 and Unit 2 integration. One of the lessons learned that we had from Browns Ferry was staff operations. Essentially, the whole operating staff did that early, because we did have some -- we were struggling, actually, at Browns Ferry getting the right number of operators to help us on some of the testing. So, we started this way in advance, right up front, when we got the project approved, and they already had hired 160 people for this -- for two unit operations, 160 additional people.

MEMBER SIEBER: You are going to need additional operators, right?

MR. BAJESTANI: Yes.

MEMBER SIEBER: You are going to have dual unit licenses? My experience is, it takes 18 months to train an operator, so that should be in progress now, right?

MR. BAJESTANI: Yes, it is, and like I said, you know, we, actually, started this past August of 2007.

MEMBER SIEBER: Okay.

MR. BAJESTANI: Just based on what we learned.

Okay, right now every department, rad, engineering, operations, they are going through readiness review, to get ready for the two unit operations.

we are going to have people to come in and do an assessment, basically, look and see what we are doing, especially, on the department readiness review, and then we are, actually, going to have another follow-up after that with INPO.

Also on the work control side of it, any work, actually, any packages that we are getting ready to go work in the field, if it's Unit 1 it goes to a Unit 1 work control center, if it's Unit 2, it goes to Unit 2 X senior reactor operator, X operator that we have hired to do this job.

Right now, we are getting ready to, actually, remove some of the interface points that we had between Unit 1 and Unit 2. We are trying the first system on non-safety related systems, going

through there, we have put the process and procedure in place to remove the interface point and start testing some of those components.

Also, on some of the meetings that we have created to make sure that we talk between Unit 1 and 2, and we really are going after the right stuff, we look at everything that we do on Unit 2 in the common area on a daily basis in our plan of the day. We look at every corrective action program that may have some operability impact on Unit 1, or Unit 2, both units, actually, they look at it.

We have a weekly meeting with the VP of Unit 1, and his Director's Board, and my Director's Board, we sit down and look at all the issues that we need to be looking ahead, and also same thing in pre op start-up having a regular meeting with chemistry and environmental.

Next page.

We are making steady progress in engineering, procurement and construction, and licensing. Refurbishment activity is going as planned.

Again, the project is on schedule and budget to support the fuel load schedule that we have.

Again, there's a lot of lessons learned from the industry. This is back in late '70s and early '80s. We have captured all those lesson plans. We have, actually, incorporated that into how we do business at Watts Bar Unit 2, specifically, and corrective action program.

Essentially, we use the same corrective action program that operating site uses.

I don't have the latest numbers, but as of last time I looked at it we had over 4,000 parents ***4:15*** evaluation report that we wrote on Watts Bar Unit 2 project, again, based on lessons learned we have the safety conscious work environment, specifically, employee concerns. We have exit interview with everybody that leaves the site, so we can understand what the issues are, if there are issues that we need to be dealing with, so we don't have the same problem.

we do that, we've got issues that require some type of stop work, we have done this a couple of times, both on the management and the QA side of it, so we stop to learn and figure out what we need to do, and put a plan that, basically, avoids recurrence.

Again, and also, a lot of lessons learned

from the industry. Watts Bar Unit 1, Browns Ferry Unit 1, 2 and 3, a lot of -- and the industry lessons learned, we have incorporated all those, and also, like I said, we have, actually, brought also input, we look at how we are doing on the construction side of it, and we are going to have another, I guess I'll call it, assist visit with INPO as we go through the rest of the project.

SUBCOMMITTEE CHAIRMAN RAY: All right. Anymore questions or --

MEMBER BROWN: I've got one, if you don't mind.

Back when we were visiting in July, I think it was July last year, you indicated -- well, we asked a question about your I&C, you indicated you were going to be replicating, if I read the words I had written down, the construction for the same specs and standard as the Watts Bar 1 ***4:16*** 21 system, with identical or equivalent hardware, and that you were going to make the same design change that you made post operationally after -- excuse me, post license, initial licensing.

And, knowing that that system was 18, 20, 20 years old, or whatever, it's not always easy to duplicate that.

I just wondered what the status was of being able to get that under, is it ordered?

MR. BAJESTANI: Yes, it's ordered, actually, it's being manufactured, and, actually, a lot of parts, a lot of parts are already fabricated, and there's a factory acceptance test that's coming up April time frame.

MEMBER BROWN: Of this year?

MR. BAJESTANI: Yes, and we, actually, we are going to notify staff, Region wants to take a look at the factory acceptance test, but right at the beginning of the project we did talk to Westinghouse, and they, specifically, said that they can provide the parts, and they have been able to deliver.

MEMBER BROWN: Okay, so you haven't been asked to approve a bunch of exceptions, or waivers, or anything like that? So it looks like you are going to be able to get something relatively close? That's good. That's a real plus.

SUBCOMMITTEE CHAIRMAN RAY: Okay. If there's nothing more, I'm going to ask the staff to quickly change places with you, And, while you are coming up, let me say, I do have in mind that we need to provide an opportunity for public comment over the phone line. There's no one here in the meeting room

is there signed up?

MS. BANERJEE: Yes, there are two people.

SUBCOMMITTEE CHAIRMAN RAY: On the telephone line.

MS. BANERJEE: On the telephone line.

SUBCOMMITTEE CHAIRMAN RAY: I'm asking, is there anybody here in the room in addition?

MS. BANERJEE: No.

SUBCOMMITTEE CHAIRMAN RAY: Okay. All right.

So, we need to make sure we allow time for public comment.

Please, proceed.

MR. MILANO: Good afternoon. I'm Pat Milano, with the NRR staff, and with me on my left is Mr. Raghavan, who is a Branch Chief with the assigned responsibility for Licensing for Watts Bar Unit 2, in the Division of Operation Reactor Licensing in NRR. And, on my right is Mr. Robert Haag, from our Region II office. He's a Branch Chief, again, responsible for Watts Bar 2 construction inspection, and he's in the Division of Construction Projects.

Today the staff's presentation is going to focus on three areas, the licensing, construction,

inspection, and then we are going to give a little bit of information on project oversight, the last part being somewhat in response to some of the questions that you had during the March, 2009 presentation.

I'll try to go through this thing a little faster than what I was expecting to do, just to keep on schedule for you.

SUBCOMMITTEE CHAIRMAN RAY: Thank you.

MR. MILANO: Okay. I'm going to start out with the review of the -- the current review of the operating reactor licensing application.

As you are well aware, the history of the construction licensing has been somewhat unique for Watts Bar Unit 2, and we've covered most of those details during the last presentation. Thus, I won't repeat -- I will only repeat that the operating license application currently before the staff was originally submitted by TVA in 1976.

After informing the staff in 2007 of its intent, and then submitting its plan in 2008 for reactivation of construction from after the plant having been in a deferred plant status, TVA submitted a framework for licensing and construction, licensing and construction completion.

In addition, the Commission provided direction to the staff to use the current licensing basis of Unit 1 as the basis for Unit 2.

In March of last year, TVA updated its application to support the Unit 2 application. The staff also noticed this in the Federal Register and offered an additional opportunity for hearing, and in that regard there has been a request for a hearing, and two contentions were admitted.

Now I'd like to highlight some of the activities that have been taking place since our last meeting.

SUBCOMMITTEE CHAIRMAN RAY: Are you going to touch on just what the characterization of the two contentions are?

MR. MILANO: Our Office of General Counsel has asked me not to go into much detail, but I will -- yes, they centered in the area of environmental.

SUBCOMMITTEE CHAIRMAN RAY: Okay, fine. No, I don't want to -- I assumed they were on the public record, and I just wanted to --

MR. MILANO: Yes, they are.

SUBCOMMITTEE CHAIRMAN RAY: -- have you identify what the general character of them was.

MR. MILANO: Yes, sir.

One contention has to do with submittal of information, and that one is just -- it's for TVA to supplement the record.

And, the other one has to do, basically, with aquatic environment and impacts.

SUBCOMMITTEE CHAIRMAN RAY: Okay.

MEMBER BONACA: Are there pipings and wire -- you know, cables buried on the site?

MR. MILANO: You mean as part of the original design, are there buried piping and cables?

MEMBER BONACA: Yes.

MR. MILANO: Yes, there are some.

MEMBER BONACA: So --

MEMBER SHACK: I think he means in place, actually buried in the ground at the moment.

MEMBER BONACA: Buried in the ground.

SUBCOMMITTEE CHAIRMAN RAY: Let me note that we've been joined by Dr. Bill Shack and John Stetkar, the Subcommittee meeting next door having concluded.

MEMBER BONACA: The question is that, then there will be components that will reach 40 years of life physically, so the plant exhausts the first 40 years of the license.

MR. MILANO: Recognize that, and as TVA indicated, that -- those aspects were also part of the overall refurbishment review, and the refurbishment took into account the environments in addition to the various systems components, it looked at environments and the susceptibility of various components to degradation. Those were all assessed, and then the program was developed, and appropriate inspections, testing, and things like that were put into place, were developed.

That overall program that TVA indicated, that TI-216 program, is currently before the staff for review, and we are, actually, very near completion of the overall program. We just have -- we have one minor issue that we are just waiting to supplement some information, and we should -- we should shortly be making an overall assessment of the program.

From that then, as you'll hear from Mr. Haag, there will be inspections of the implementing procedures, followed by actual inspection of how the program is done at the field.

MEMBER BONACA: All right.

MR. MILANO: With regard to the safety reviews, in our last presentation we noted that TVA

had submitted the Unit 2 specific final safety analysis report, FSAR is part of its updated application, and this, basically, took the Unit 1 and 2 FSAR that was in place at the time that Unit 1 was licensed, and now made it into a Unit 2 specific FSAR that's now just meant for licensing for Unit 2.

For reference, the current licensing basis of Unit 1 is supported by an updated safety analysis report, USAR, which is now at Revision 7, and that is the -- Rev 7 of that USAR is the current licensing basis that we are applying our review against.

The staff's review is fully underway, and the activities, milestones, resources, and schedule constraints are being managed using the Enterprise project management tool with NRR.

As you can see by the slide, teh actual changes to TVA's application have been coming in as amendments to the FSAR since about April of 2009. However, the first two amendments contained relatively small amounts of information, or changes, thus the major work before the staff, actually, began with the submittal of amendment 95 on November 27th of last year, through amendment 97, which came in mid January. So, the bulk of our reviews began,

basically, in about -- in teh last couple months.

Okay, proceeding on to what -- and TVA spent a lot of time talking about its corrective action programs, just remember, these came out pursuant to the 10 CFR 5054(F) letter back in 1985, due to the staff's identification of a number of construction-related deficiencies going on with TVA system-wise.

And, regarding Watts Bar, well, regarding TVA in general, there was a performance -- there was a nuclear performance plan that came out, and each one of its stations had a separate -- a separate volume, which talked about plant-specific ones. With Watts Bar it was in Volume 4 of NUREG 1232, and it was -- excuse me, it was reviewed by teh staff in NUREG 1232, Volume 4, and also there was some carryover into the SERs, which is NUREG 0847.

Implementation, however, by TVA only occurred at Watts Bar Unit 1 because of TVA's decision at the time to defer Unit 2. And, although TVA has informed us that they would implement most of the corrective actions as was approved for Unit 1, there were several areas where TVA decided to provide the staff with different approaches, based on the incites that they had learned from Unit 1, and also

because of some more efficient ways of doing business.

The staff has reviewed all those changes, along with, you know, making an assessment of what was done in the past, and, indeed, from the standpoint of program review the staff has completed its review of all the 29 corrective action and special programs, and have turned them over to the Region for inspection of TVA's implementation.

With regard to generic communications, as we've indicated in Supplement 21 of the SER that was issued last February, when I say last February I mean February, 2009, there were a number of items that generic communications the staff stated it would be reviewing to determine whether the safety issues were resolved or if additional corrective actions were needed.

In this regard, the staff also noted both the expected action that remained open at Unit 2 for each of the generic communication items, and the expected staff action that are currently open.

The staff found that most of the vast majority of these items were resolved at the time that Unit 1 was licensed, and most of these pre 1995 items that do remain open currently have to do with

TVA's submission of technical specifications. So, when those technical specifications -- the technical specifications are already in, as the staff reviews those as part of its safety review we'll end up closing out these open generic communications.

Also, the staff right now is focusing primarily on those generally generic letters that have been issued post 1995. There were 25 that the staff felt were appropriate for Watts Bar Unit 2, and of those all but ten are -- all but ten are completed. We are waiting for information from TVA on five of them, and five of them the staff review is in progress.

MEMBER BANERJEE: Which are the five that you are waiting for information?

MR. MILANO: There's -- actually, there's information -- I'll give you an example.

TVA, with regard to pressure locking and thermal binding, you know, that one, 9606.

MEMBER BANERJEE: Right.

MR. MILANO: TVA made some -- in 2007 they gave us a letter that addressed these open generic communications, and told us that they were going to implement the same as Unit 1.

However, as you heard from TVA this

afternoon, certain valves they had procurement problems on, so they are not going to get exactly the same valves that were in Unit 1. Also, they had some -- they did have some issues with Unit 1, and had to do some repairs. However, what was presented to the staff wasn't complete, we didn't know -- when they said they were going to do -- when they said they were going to do the same as Unit 1, we want to make sure that the review incorporated these new valve designs, and also, we wanted to know more about what they were, actually, going to do, based on their -- based on the discovery during the Unit 1 review.

So, that's, basically, it. It's not a significant amount of information, it's generally in the form of clarification and updating of what was presented in 2007 for those five.

with regard to the -- TVA has already discussed the fact that there was a final environmental statement that was updated to support -- that was updated to support the Unit 2 operating license application, and a final environmental statement, as described in NUREG-0498, was prepared by the staff in 1987, or, excuse me, 1978, to support operation of both Units 1 and 2.

And then, because of the long delay in

licensing Unit 1, a supplement to the final environmental statement for operations was prepared by teh staff in 1994, to assess changes that had occurred since the original FES-OL was prepared.

You'll note that TVA is a Federal agency itself, was required to prepare an environmental impact statement, and TVA supplemented the environmental impact statement for Unit 1 and 2 to assess Unit 2 operation in February of 2008, with further information on supplemental cooling and severe accident mitigation alternatives that came in in January, 2009.

And, as a result, the staff has begun its review. We are doing that with contractor support from the Pacific Northwest Labs, and TVA noted that in March of this month TVA's response to some RAIs are due.

With that, it's still -- the environmental review is still progressing.

With regard to the radiological emergency response plans, in Section 13.3 of the FSAR, TVA states that the REP provided protective measures for TVA personnel and for the health and safety of the public in the event of a radiological emergency, and the TVA nuclear REP contains -- is a corporate

program, and it contains site-specific appendices that are applicable to each plant.

In 1993, TVA had withdrawn -- excuse me, TVA withdrew the REP -- the site-specific REP for Unit 2, and then resubmitted a Unit 1 plan which was approved for licensing a Unit 1.

Again, in the March update TVA provided its template, as was indicated, which is Appendix C to the REP, and has indicated that the site-specific data and references were preliminary and that verification would be coming in. And, with that the current status is, the off-site portion of it was being reviewed by FEMA. These are the state and local plans. That is well underway, and we are hoping to get FEMA's finding of reasonable assurance on the ability of the off-site plans to be implemented shortly, and the staff has continued to work on the on-site portion.

We are nearing completion of a set of RAI questions on that, but recognizing that it's not questions on the overall plan, it's just they are focused on, basically, the emergency action level information that's specific for Unit 2.

Physical security plan, TVA has already indicated this, you know, and this month we are

expecting a new -- the site security plan for Watts Bar to come in with changes that incorporate the recent rule changes, and also provides a better description of the current status of construction of Unit 2 in it.

And, with that, the staff believes it currently remains on schedule with licensing activities, to support TVA's request to receive an operating license in April, 2012.

And, subject to any further questions, I'll turn over the discussion on inspection to Mr. Haag.

Bob?

MR. HAAG: Good afternoon. As mentioned, my name is Bob Haag. I'm the Branch Chief of Region II, with oversight responsibility for Watts Bar Unit 2.

My staff, I have approximately six inspectors working for me, and we are dedicated strictly for Watts Bar Unit 2 activities.

What I wanted to do this afternoon was just bring you up to date on what's transpired, as far as our inspection activities personnel-wise, progress that we've made, issues and things that we looked at, since we briefed you back in July of 2009.

Just recently, we completed our end of cycle review for 2009 of Watts Bar 2 construction activities. We followed the process very similar to the ROP, where we look at it periodically, we go through many of the same steps. We looked at the construction programs, and the activities that they've implemented over the past year.

For the most part, our conclusion was that TVA had adequate controls in place, and activities that we reviewed were being properly conducted.

We'll be sending a letter out to TVA, actually, sent a letter out signed yesterday, and we are going to be conducting a meeting on site -- excuse me, a meeting in the local area, to inform the public of the results of our end of cycle meeting. That will happen in April.

As far as the resources that we used back in 2009, 8,800 hours. It's not quite what we were budgeted, we had 10 FTE budgeted for the project, so we weren't -- didn't use that fully, and what we've, actually, done as far as that 10 FTE allotment, I mentioned earlier, I have six people working for me, the other four FTE were designated to our instruction, inspection staff in the Region, and we

pull resources out of those, so that's how we divvy it up.

And, what we ended up doing for 2009, obviously, we'd be following construction activities, the pace of the safety-related work really did not dictate that we use the full 10 FTE.

We anticipate, as safety-related work does increase this year, and transitioning to completion of construction in 2011, towards testing, we certainly will be using the full allotment of resources.

Recently, we hired two new resident inspectors for Watts Bar Unit 2. One of them was to replace an individual who resigned back in October of 2009. The other individual was -- our plan was to have three residents, along with a senior, and we are finally getting to that full staffing level, so we have four resident inspectors on site.

What we want to do is for that third resident inspector, he will have a lead activity in the pre-op testing, start-up testing, and, eventually, that individual will transition over to the operations staff, and that will be then responsible for looking at two unit operation.

Our plan is to have N+1 staffing for the

operating units for at least the initial period of time while they have dual unit operation.

We mention here that we are reviewing -- currently reviewing the historical construction deficiency reports. I mention that, because that's really the last piece of items that we need to sort through and decide what we need to inspect.

I mentioned in previous presentations where we've looked at the scope of our inspection effort, and we've looked at historical allegations, bulletins, generic letters, and we've factored all those into our inspection effort, construction deficiency reports, which is comparable to an LER for an operating plant, was the last piece that we are currently looking into. And, once we get that done, we'll have the full scope of inspection activities that we plan to do for Watts Bar Unit 2.

And then, monitoring of construction activities with the possibility of impact of Unit 1. That effort has been ramping up recently, and I think it's partly due to increased work on TVA's part, particularly, on safety-related equipment and interfaces, close proximity to Unit 1 equipment, whether it's actually equipment or just in the general vicinity, just the recognition that we need

to spend time looking at that. That's really a dual unit -- dual op separate. Both the Unit 1 residents and the Unit 2 residents are sharing in that responsibility. We are scoping out some of the things that we need to do to proactively look, make sure TVA's work controls are in place, and that they are screening those activities that have the jeopardy of affecting Unit 2 and properly controlling them.

Some of the major inspections that we have recently performed, we were monitoring the eddy current inspections for steam generators, looking both at the inspection results, and also looking at TVA's efforts on dealing with tube indications, and issues such as the existing plugs they have in generator tubes, changing them out to a newer material. We've looked at that. We've engaged their staff, and we understand their path going forward, and are fairly pleased with that.

We still have inspections left to do, to finalize our inspection area there.

RCS piping, limited opportunities to look at any welding on RCS piping for the most part, as you saw on your visit RCS is pretty much in tact. A few opportunities we do have, we are looking at that. One of them was the RTD bypass manifold, where they

were replacing that, installing welds. We just recently did an inspection on that, and there's another upcoming activity, where they are going to be installing caps on the upper head injection nozzles on the head. We've got planned inspectors out there to look at that also.

We recently did an engineering inspection that was back in late summer of 2009, to look at the engineering processes, their programs, and we also looked at some of the engineering packages. For the most part, we felt like their programs were thorough, and the products that we looked at, with the exception of one, were fully satisfactory. There was one issue that we identified on like for like replacement, where the implementation of that package really wasn't too good, so we are going to do a follow-up inspection, both to look at that issue, and how they resolved it, and also to look at some of the other areas where they had limited opportunities for us, just some of the functional areas we wanted to look at, the packages weren't as many as we needed to look at, so we want to go back and finish that effort.

And, that inspection --

MEMBER BONACA: I'd like to go back to my

question before, because you're the right guy, you are doing the inspections.

MR. HAAG: Yes.

MEMBER BONACA: And again, buried cables and piping that have been in the ground now for 35 years, will be 40 years old by the time the plant restarts. What kind of evaluation is being done of this piping and cables?

MR. HAAG: It would be covered under the refurbishment program, as Mr. Milano mentioned earlier.

TVA --

MR. MILANO: Also under the maintenance rule portion 2, because a lot of the buried piping is piping that's already in operation to support Unit 1.

MR. HAAG: Piping and cabling, a lot of it is the ERCW, which is their service water, and they've got underground piping and cabling associated with that.

Going back to the refurbishment program, what TVA has done is to look at the various degradation mechanisms for equipment, components that have been sitting there for 25-30 years, identifying those degradation mechanisms, and then addressing how they are going to look at those to make sure they are

back to the design requirements, or doing what they need to.

So, that program has been established. Teh staff is currently reviewing it. I'm getting ahead of myself, because that's a slide later on, but I'll mention it. So, the staff is currently looking at, have they identified all of the appropriate degradation mechanisms. If it's piping, you know, have they looked at piping that's either underground, wedded, identified how it could be damaged, how it could be harmed, and what they are doing to address that.

Once the staff completes their review of the program and says, you know, if you go out and take these actions you should appropriately cover that, we will look at its implementation. We'll look at and verify they are doing the inspections that they need to do, wall thickness measurements and so on.

But, to answer your question, as far as those components with the age that they have, and how they are going to be assured that they are going to be able to perform their function, will be a refurbishment program.

MEMBER BONACA: The reason, clearly, the

components will be 40 years old by the time you start the plant, they'll be 80 years old at the end of the life of this plant. And, it could be 100 years old, you know, that's a pretty significant commitment, and anyway, it will be interesting to see how the disposition will take place.

MR. RAGHAVAN: I'm Mr. Raghaven, Branch Chief of the Watts Bar Special Projects.

Two things. One is, we will bring up in the next meeting these additional programs, and we will include that. ***4:46*** review, and they, actually, will be more done by then, so there will be more detail.

Number two is that, some of these components are already in use in the Unit 1, and they are covered under the maintenance rule for the safety and supply.

And so, whatever happens, you know, we will take the licensing program in terms of whether they should be replaced every five years, or ten years, whatever the inspection shows.

MEMBER BONACA: I am asking about the buried pipes, so my question was that, because clearly we see that that's probably one of the issues that is going to affect this industry the most,

leakage.

So anyway, I think you gave me a proper answer, and we'll think about it.

Thank you.

MR. HAAG: Upcoming inspections, we have some of the major areas we are going to be looking at. We have the problem identification, resolution inspection. That's a team inspection. We did the PI&R inspection last year, that we go the corrective action program, both from program adequacy standpoint and how they are implementing it.

We'll do a similar inspection this time, more focusing on, actually, implementation, since we've looked at the program, and as mentioned earlier, the program that they've established for Unit 2 is very similar to the program they have for Unit 1. So, it's been looked at numerous times.

We have an engineering follow-up inspection that I mentioned, and the refurbishment inspection I'll discuss later on.

Our preparation for system pre-op testing, that's on our minds now, to make sure we've got the right focus, got the right people in place. We've been spending the majority of the time, obviously, looking at construction inspections,

making sure we have all the inspection procedures called out in our Manual Chapter 2512, which defines the construction inspection program. We've got those activities planned out, and then we are going to make sure we've completed all the inspection objectives, but we recognize that, you know, pre-op start-up testing is coming very soon, so we need to make sure we've got, both the right resources and people in place to be able to do that.

Construction scheduling, we mentioned that in the past, that was a challenge from the standpoint of trying to understand the scope of TVA's work on some of these activities, and when they have been performed.

We've been able to better get information communicated to us that would allow us to either plan our inspectors, both from how long it's going to take to look at a particular area, and when it's going to be able to be inspected.

It's still a challenge. We are still looking at them to be able to identify some particular windows on activities we need to inspect, so we can make sure we have people available.

So, I list that still as a challenge.

SUBCOMMITTEE CHAIRMAN RAY: You heard the

discussion we had about project schedule.

MR. HAAG: Yes. Yes, I wanted to touch base on that.

We understand that, because we look at that routinely, whether a unit is in an outage, or whether they have some other production schedule, and we looked at that as far as, you know, have they established the right safety conscious work environment, looking under that umbrella.

I'll give you an example of some of the things that we've been looking at. During the last Unit 1 refueling outage, they had a lot of -- they had several mods they needed to install while Unit 1 was down. We were looking at those, both from an adequacy of the installation, and also were they taking the right steps, was the quality being included.

We had one of our inspectors out t here who was observing a QC inspector doing some non-destructive examination testing, and we pointed out it appeared, based on the circumstances, there was pressure on him to get the job done. We raised that up, TVA took appropriate action, so that is a concern of mine.

SUBCOMMITTEE CHAIRMAN RAY: Okay. Let me

ask you, do you -- do you know, and this is not a question I would expect you to have an answer to, but you might, if there's any float in the critical path schedule to this integrated system test next April, I mean, a year from April?

MR. HAAG: No.

SUBCOMMITTEE CHAIRMAN RAY: Okay. Well, because it's tied to Unit 1, and because I'm sure that the TVA grid needs Unit 1 for the summer peak, I guess I would pick that out as something, if you'd look at the hangers, for example, they are, obviously, pushing up a bow wave here, and so that would be what I would be concerned about in the context that you just mentioned.

MR. HAAG: Yes. Well, I mean, there is a lot of work that has to support that, safety-related injection pumps, they have to be installed, all that equipment, yes.

SUBCOMMITTEE CHAIRMAN RAY: I'm just saying that, because of that, it seems self evident that there has to be a lot of attention from you folks to ensure that the safety conscious work environment, or however you want to measure that attribute, is maintained, because the consequences of missing that date are pretty severe.

So, the pressure to not miss it is going to be pretty severe, and that simply means that you guys have to recognize that, and do what you do accordingly.

MR. HAAG: Yes. I mean, that clearly is an objective on our plate to monitor the safety conscious work environment, whether, I mean, we look at the employee concerns programs, are they being responsive to issues. We look during our PI&R inspections. We look at their staff. We question their staff. Do they feel free to raise safety issues?

So, we try to monitor that.

SUBCOMMITTEE CHAIRMAN RAY: Whatever techniques you use, you know that better than I do, but I mean, like I say, they are going to have to maintain a hanger acceptance rate twice what they've done recently, in order to get where they need to go.

And, that's just an example.

So, enough said.

MR. HAAG: Okay. Moving on to refurbishment, let me just touch base on that a little bit, because, you know, we were here last year, you had a lot of questions as far as how is TVA going to establish quality in the plant, re-establish

it, verify it, however you want to characterize it. And, refurbishment program, in our minds, does a lot of that, as far as taking the equipment and ensuring design requirements, manufacturing specs are there.

I talked a little about, you know, the staff, NRR staff is currently reviewing their program from a scope-wide, that's important so we can understand if they do what's specified in their scope, if they implement that properly.

Once the staff has accepted it, and, you know, it's gone through some review and exchange of information, if they implement it properly, which is our job to verify it, the refurbishment program should be successfully done.

We had an inspection procedure, a new inspection procedure written for our effort there. One of our very experienced inspectors drafted that, worked with the NRR staff in being able to get that published. That's currently out there, and we are doing some inspection to that, as far as some of the actual refurbishment of components, we are looking at some of that, their operator valve, actuator, refurbishment, and some of the small circulator pump refurbishments.

It's really a two-phased approach, our

inspection effort there. It's to look at scope of their activity, have they identified and included all the right components, systems, into the program, and then sample implementation, look at replacements, look at on-site refurbishment, look at areas where they are accepted as is, based on an evaluation or maybe some testing.

So, we'll take that two-phased approach, we'll implement an inspection procedure, to be able to make sure we've properly covered the bases.

I mentioned a focus on passive equipment. That's because of, you knwo, the unique nature of some of these passive components, and the fact that a large majority of them they are going to accept as is, based on either evaluation, certain number of tests, certain number of inspections. We want to make sure that they are properly doing that, and they are properly, because they are sampling their inspections, their wall thickness measurements, that they are looking at critical locations and factoring in as found design into, you know, have they properly, you know, looked at sufficient sample size, sample locations and things like that.

So, we'll be spending a lot of time looking at their evaluation process and what they are

doing for passive components.

SUBCOMMITTEE CHAIRMAN RAY: You've heard buried piping and cable mentioned a couple of times.

MR. HAAG: Yes.

And then, the last thing is, just some of our sampling that we are going to be doing, as far as implementation. We'll look both from a risk perspective standpoint, and we are also looking from what's the potential damage that that degradation mechanism could do to the component.

MEMBER-AT-LARGE STETKAR: Bob?

MR. HAAG: Yes.

MEMBER-AT-LARGE STETKAR: By the way, for the reporter's benefit, my name is John Stetkar. I'm a member. I came in late.

The last bullet there says your samples are being selected based on risk significance. Is the implication of that also applied for passive equipment, because the vast majority of risk assessments don't explicitly include passive components.

Passive components, A, and whether general are considered passive component failure modes, for example, spurious closure of a valve or something like that.

So, I was curious how that risk significance was being -- what benchmark was being used to evaluate that risk significance for the sampling.

MR. HAAG: For the passive components, the way we've laid out our approach to scoping out and making sure they've got passive components properly included, would be to look at some systems and do vertical slices.

MEMBER-AT-LARGE STETKAR: Okay.

MR. HAAG: So, we'll be able to use risk insights to be able to pick out the systems.

As far as the actual components within them, you know, we are not going to look at every passive component in the two or three systems, we will look at -- we'll be selective in looking at which passive components.

MEMBER-AT-LARGE STETKAR: I think my question was focused, though, you mentioned taking a vertical slice through systems, based on their risk significance.

So, for example, the emergency diesel generators might have relatively high risk significance, but they may not have very many passive components, such that if some systems might have a

relatively higher percentage of passive components, but not -- may not show up as risk significant, because the risk significance is based on failures of primarily active equipment.

MR. HAAG: Yes.

MEMBER-AT-LARGE STETKAR: Do you follow me?

MR. HAAG: Yes.

MEMBER-AT-LARGE STETKAR: You know, it gets back into something that -- nobody ever models cables, or failures of cables, and, usually, DC systems, for example, don't show up as being very risk significant, depending on what measures you use.

And yet, they may be prone to passive type failure modes.

MR. HAAG: As I mentioned, you know, passive components will -- I won't say will receive all of our focus, but certainly they are going to -- we are going to give that a good deal of emphasis.

MEMBER-AT-LARGE STETKAR: Sure.

MR. HAAG: Because of, you knwo, the unknown nature, and the fact that they are relied on. I mean, they are not presumed to fail.

So, we need to look at those, need to make sure -- one of the things that we struggle with

is for piping, to make sure areas that they go out and sample they've bounded them, that they've looked at the worst case conditions, that they've looked at, you know, low-lying areas. If there has been some water into a system where they didn't think, that they've now captured that back into the program.

So, yes, it's got to be more than just --

MEMBER-AT-LARGE STETKAR: I was going to say, but in a sense what you are describing are, primarily, deterministic test types.

MR. HAAG: Well, here again, what's the degradation mechanism. You knwo, is it something that you would expect, because it's a wedded system, and it's very likely you could get corrosion versus some of the degradation mechanisms that are just due to handling construction.

Well, if it's in an area that doesn't necessarily get a lot of traffic, well, it's probably not going to be that type of damage. So, we'll have to factor that in, too, you know, our sample size.

MEMBER-AT-LARGE STETKAR: Thank you.

MR. HAAG: So, as far as the conclusion, you know, we believe, based on the inspections that we've done, construction activities have been properly implemented. We haven't had any significant

findings of problems that we have identified, TVA has been responsive in addressing those.

We believe we have the inspection resources we need, recognizing, you know, the majority of our inspection is yet to come. There's still a lot of unknowns, as far as things that can come up, so that certainly, you know, could surprise us, but we believe we have adequate resources right now.

We've identified, once we complete our review of construction deficiencies report, we'll have the scope of all the activities that we want to look at identified. We've got inspectors assigned to a large majority of those, so we have owners, as we refer to people who we can hold responsible, to say, hey, you need to look at these inspections, these are your responsibility, we'll assist you in getting up into the site, but you have to be, you know, proactive and making sure they get done.

Scheduling, I think we made progress on there, but that's still a challenge to be able to schedule our inspections and being able to get the information from TVA that we need to properly schedule things.

SUBCOMMITTEE CHAIRMAN RAY: And, we've

talked about that.

We are going, of course, hear the last piece of the staff's presentation. We will then hear comments, if any, from the public, then we'll stop that and finally take comments from the members, before concluding the meeting. It's now 5:00, so we are now into overtime.

With that said, proceed.

MR. MILANO: Okay. All right, the last part of our presentation is discussion of the oversight actions at Watts Bar.

In our March, 2009 presentation to this Subcommittee, the staff stated that senior management provided guidance to the staff regarding the review of the operating license application in teh form of an NRR office instruction, LIC-110.

And, included in this office instruction was the establishment of a group consisting of participants from both NRR and Region II, which would be established to oversee project completion,

In addition to this oversight role, this group, called the Watts Bar Reactivation Assessment Group, and I'll just refer to it as the WRAG, serves as a focal point for the status of the project and for coordination between the Region and the offices

at Headquarters.

Lastly, this office instruction, LIC-110, stated that the specific charter for the group, including its organization and reporting responsibilities, would be established prior to its implementation. And, indeed, this was done, I indicated on here it was done in August of 2009, actually, the Charter itself was signed out in July of 2009, and the August meant that that's when it, actually, got started up.

With regard to the Charter itself, I'm not going to go ahead and read this thing, and this Charter, which was jointly prepared or established between the Director of NRR and the Regional Administrator of Region II, both approved the Charter and established the formation of the WRAG.

And, in accomplishing these objectives, the Charter describes both the project priorities, the scope of activities, reporting responsibilities, and membership of the group.

As you'll see up here, the membership of the group, the Chairman is Mr. Bruce Boger, who is the Deputy Director for Reactor Safety Programs in NRR, and the Vice Chairman is Mr. Tony Gody, Deputy Director, Division of Construction Projects in Region

II.

Along with -- along with those two gentlemen, there are voting and non-voting members of the panel. The voting members are members from the project staffs of both NRR and Region II, along with the senior resident inspector for the construction site, and the other non-voting members are, generally, people that we bring in depending on the scope of the functions that we are going to be discussing at WRAG meetings, like during the last one we had a heavy focus on what we were going to do in terms of vendor inspections. And, we brought our organization into the WRAG meeting.

With regard to oversight activities to date, we held our first meeting in September of 2009, and another one recently in January, 2010.

Also, following the January meeting, the WRAG met with TVA in an open -- in a public meeting that afternoon, and we discussed a number of the things that were brought up during the staff's internal discussions earlier that day.

The last thing I'd like to mention is, is with regard -- there is some formality within the way we review things, and we track everything that comes up within an action item list. We both track it for

accountability, we make sure that it's a way of also making sure that the issues are resolved, and there's an actual documentation for closure of the items.

And, with that, that concludes the presentation on oversight, and it also concludes the overall staff presentation.

SUBCOMMITTEE CHAIRMAN RAY: Good, thank you.

Well, this is, in many ways, a unique effort, and so this unique oversight function is what seems to me at least to be a good way of dealing with that fact.

MR. MILANO: That's correct.

SUBCOMMITTEE CHAIRMAN RAY: There isn't any track to run on here for a lot of the issues that have to be addressed, and having a standing group to identify, discuss and resolve them promptly is a good thing.

MR. MILANO: That's, indeed, correct, and going back over the -- probably approaching 30 action items that have come out of this, the majority of them are as you indicated. They are things that have come up because of the uniqueness of the Watts Bar situation, more so than just what you'd consider to be just routine activities for any type of project

completion.

SUBCOMMITTEE CHAIRMAN RAY: They will be available to deal with any increasing demands for action on your part that may develop as we get closer to the key dates?

MR. MILANO: Well, that's correct, and while we were -- while we originally contemplated like having two of these meetings per year, we are already finding out that that is insufficient, and we are, actually, having our next meeting in May, at the Region II offices, followed several months later with a meeting that will be at the site, and wherein, we will be able to get further direct interaction with TVA.

So, it's coming down to about every three months now.

SUBCOMMITTEE CHAIRMAN RAY: Okay. Before we go to the public comment period, are there any questions from the members on this last piece?

ACRS VICE CHAIRMAN ARMIJO: I don't understand this voting concept as a management concept on a project like this. Could you explain?

MR. MILANO: Basically, as an explanation to it is, is as we come up with action items, and we define what we want, what the issue is, and the level

of effort that needs to go into it, we get the basic group comes to a mutual agreement by vote as to, is that the right approach, is that what we really want, is that the scope of what the action is and stuff, and that's what is meant by voting members.

ACRS VICE CHAIRMAN ARMIJO: I don't come from that kind of an environment.

SUBCOMMITTEE CHAIRMAN RAY: You don't mean majority rules, right, you mean --

MR. MILANO: You reach technical and administrative consensus in some way, and we use the term voting to describe it.

MEMBER SIEBER: When I was in industry, there was only one vote.

MR. RAGHAVAN: At the end of the project, do you guys think all the safety issues have been addressed? Is there anybody who has a reservation on the safety issues, that either the WRAG meeting or any other staff have anything. That's where the wording comes from.

SUBCOMMITTEE CHAIRMAN RAY: Yes.

MR. RAGHAVAN: Do you believe that to be a consensus. Somebody says four voted in favor, and one not.

ACRS VICE CHAIRMAN ARMIJO: Okay, I

understand.

SUBCOMMITTEE CHAIRMAN RAY: All right. So, it's voting, not in a majority rules term, but a detailing term, if I can put it that way.

All right. Now, we have, we believe, one or more members of the public on the line. We are going to open it now and ask the first one to speak, be recognized, and provide us their comments, and then when that's done we'll ask if the next person on the line wishes to make any further comments and so on.

So, let me ask Maitri, is the line open at this time for comments from the public?

MS. BANERJEE: It should be, I can go and verify.

SUBCOMMITTEE CHAIRMAN RAY: I'll assume it is, subject to checking, and ask the first person who wishes to speak to please identify yourself and provide us any comments that you have.

My perception is that the line isn't yet open from the other end, but it soon will be, so just stand by.

MS. BANERJEE: The line is open.

SUBCOMMITTEE CHAIRMAN RAY: Okay. I am told the line is open, so again, let me ask the first

person, member of the public who has been participating with us, to please identify yourself and give us any comments you have.

Well, perhaps, we've overrun the time they wished to spend with us. I'll ask again one more time before we move on, is there any member of the public on the open phone line who wishes to make any comment at this time?

We managed, I guess, to extend the time beyond the patience the public member had.

So now with that, we'll, as usual, go around the table here to see if any of the members can help us come to some conclusion, based on the Subcommittee meetings, so we can capture that for the minutes that will be prepared.

Jack?

MEMBER SIEBER: I'd like to thank the people from TVA and the staff, particularly, Region II, for participating.

I, actually, have no questions or comments beyond the questions that I asked during the presentation to offer.

SUBCOMMITTEE CHAIRMAN RAY: Sanjoy?

MEMBER BANERJEE: I'd like to join Jack in thanking the staff and TVA for a very interesting

presentation.

I would like to see the hydrology work, which I think the staff has now. It has a bearing, not only on Watts Bar, but also on Bellefonte.

I don't think I have any other immediate comments.

SUBCOMMITTEE CHAIRMAN RAY: All right. John?

MEMBER-AT-LARGE STETKAR: Nothing, thanks.

SUBCOMMITTEE CHAIRMAN RAY: Sam?

ACRS VICE CHAIRMAN ARMIJO: Very tight schedule. That's all I can say.

SUBCOMMITTEE CHAIRMAN RAY: Said?

ACRS CHAIRMAN ABDEL-KHALIK: I have no comments.

SUBCOMMITTEE CHAIRMAN RAY: Charlie?

MEMBER BROWN: None from me.

SUBCOMMITTEE CHAIRMAN RAY: Mario?

MEMBER BONACA: I have already expressed my thoughts.

SUBCOMMITTEE CHAIRMAN RAY: As have I. I will just say that I believe that the -- I know, having been through this a couple of times myself, there comes a time when the regulator says, all

right, show me your schedule for getting from where you are now to where you say you are going to be at time X in the future, and demonstrate that that's something that you can do, so that I can plan what I need to do.

And, that's -- the time that I have in mind is, like I said, 13 months away, so it's not overdue, but before too long it's going to be appropriate, I think, to take a look at what -- the go work to that critical milestone.

MEMBER SIEBER: Right.

SUBCOMMITTEE CHAIRMAN RAY: I don't view fuel load as a critical milestone, fuel load will get loaded when it gets loaded. That's no big deal.

But, when you've got to plug in to an adjacent unit, and that unit can only have an outage at a particular time window, that then becomes a big deal, and you need to know what the to go work is starting in the next few months until you get there, would be my only further comment.

And, the reason is, not because I have any burden for meeting the schedule, it's because of the impact that schedule can have on the other things that we need to do.

Okay, no other comments, we'll stand

adjourned.

(Whereupon, the above-entitled matter was concluded at 5:15 p.m.)

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT UNIT 2

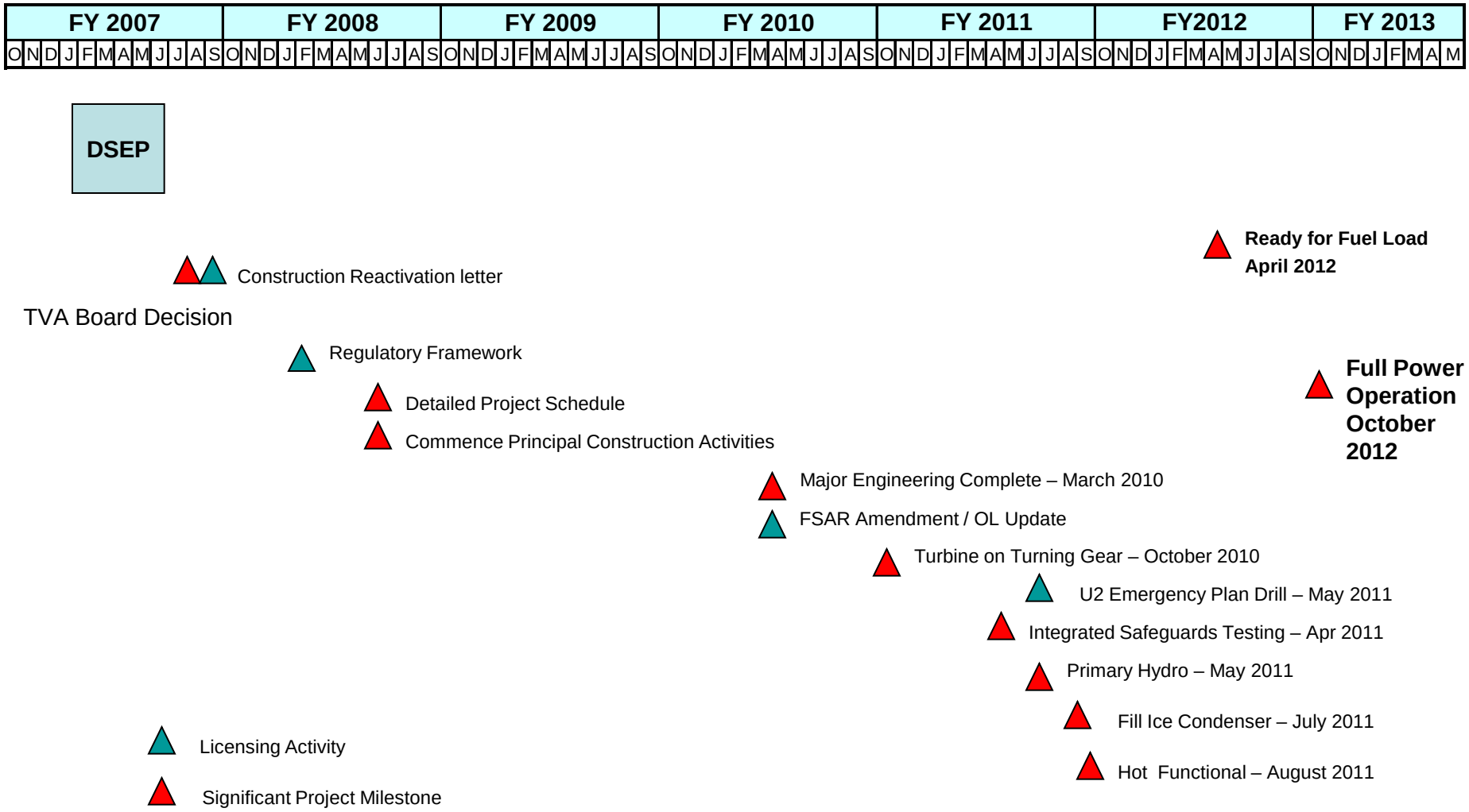
Advisory Committee on Reactor Safeguards

March 3, 2010

Agenda

- Construction Completion Status
  - Integrated Schedule
  - Procurement
  - Engineering
  - Construction
  - Refurbishment
  - Licensing
- Special Topics
  - Individual Plant Examination (IPE)
  - IPE External Events (IPEEE)
  - Unit 1 and Unit 2 Integration
- Conclusion
- Questions

WBN2 Construction Completion Status



M . Bajestani

WBN2 Construction Completion Status

Procurement

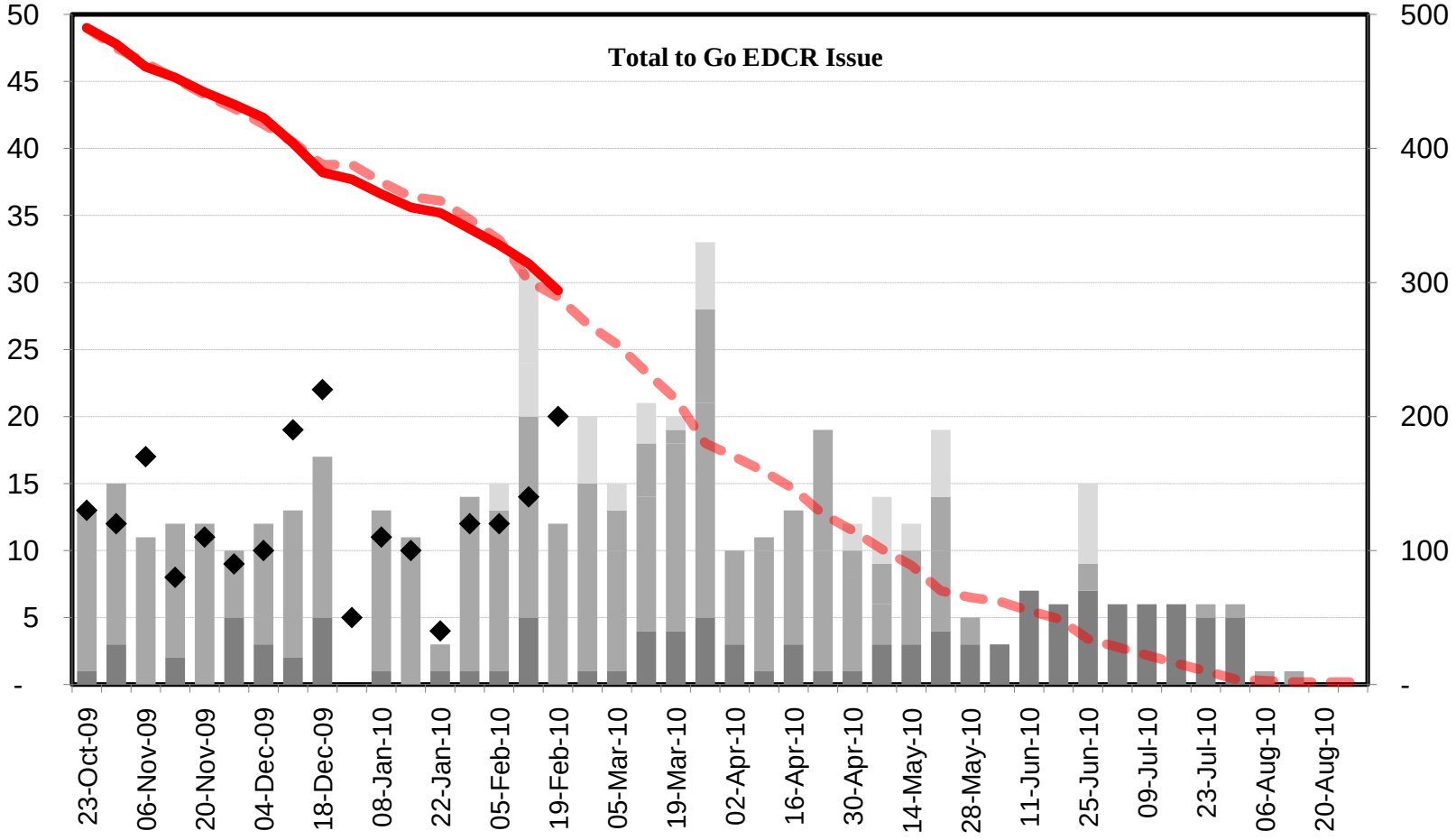
- Bechtel Oversight of Procurement and Supplier Quality
  - Shop Surveillance Program
    - Surveillance Reports
      - 281 visits to date
      - 168 reports issued
  - Training for Counterfeit / Fraudulent Material
  - ASME QA Program Audits for New Suppliers
- TVA Oversight of Bechtel QA Performance
  - Participate in source surveillances
  - Independent review of receipt inspections
  - Audit of ASME procurement and material storage

WBN2 Construction Completion Status

Engineering

- Two Unit Operations with margin
- Overall Progress ~ 60% complete
  - Design Modifications ~ 64% complete
  - Calculations ~ 72% complete
  - Corrective Action Programs and Special Programs ~ 60% complete
- Historical Design Basis Quality Records
  - Retrievable, Legible, Usable
- Quality of Engineering

WBN2 Construction Completion Status

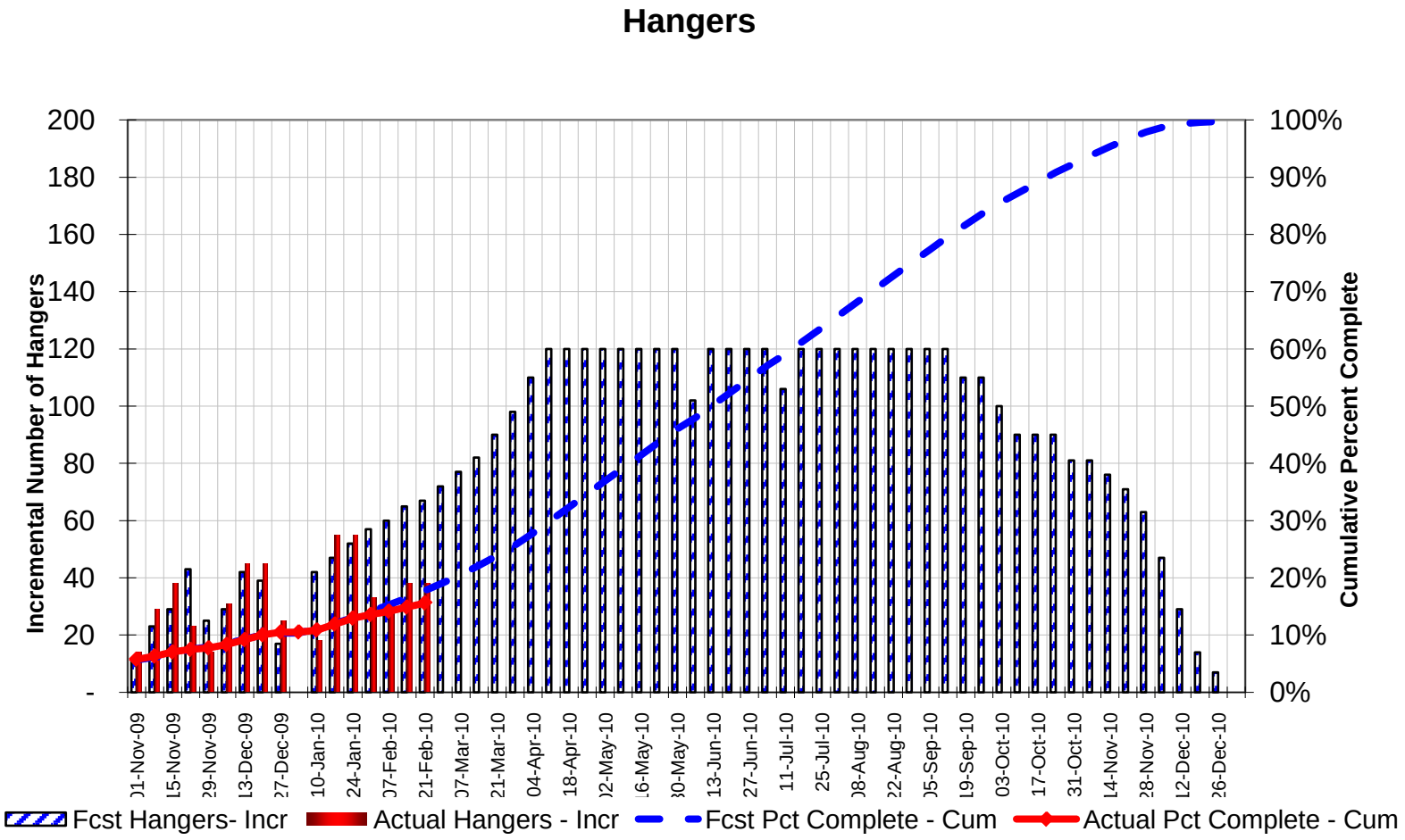


M . Bajestani

WBN2 Construction Completion Status

- Construction
- Overall Progress ~ 23% complete
- Construction Focus Areas
  - Refurbishment Activities
  - Bulk Work
- Quality of Construction
- Critical Path
  - Safety Injection System
  - Chemical and Volume Control System
  - Plant Computer System
  - Component Cooling System
- On Track to Complete Construction Activities to Support Current Fuel Load Schedule - April 2012

WBN2 Construction Completion Status



WBN2 Construction Completion Status

Refurbishment Program Overview

TI-216
WBN 2
Construction Project
Refurbishment Program

Program ensures WBN2 Plant Equipment meets original:

- Licensing Basis
- Design Basis
- Equipment Vendor Specifications

00090
WBN2
Passive Component Evaluation/Refurbishment

Process that provides criteria for evaluating passive components to determine if further refurbishment is required.

WBN2
Passive Component Evaluation/Refurbishment Procedure/Work Order

Work document that provides direction for evaluation and refurbishment, if required of specific passive component/ commodity type.

N1302
WBN2
Component Refurbishment Evaluation

Component Refurbishment process evaluates each component to assess

- Replacement
- Vendor Refurbishment
- Refurbishment
- No Action Required

WBN2
Active Component Refurbishment Procedure/Work Order

Work document that provides direction for refurbishment of specific component or active component type.

May include evaluation of passive components during active component work.

WBN2
Testing Programs

Testing Programs to ensure SSCs meet original licensing, design and equipment vendor specifications at turnover. Testing includes:

- System Flushing
- Construction Testing
- Cold Hydrostatic Tests
- Hot Functional Tests
- RG 1.68 Testing

WBN2 Construction Completion Status

Licensing

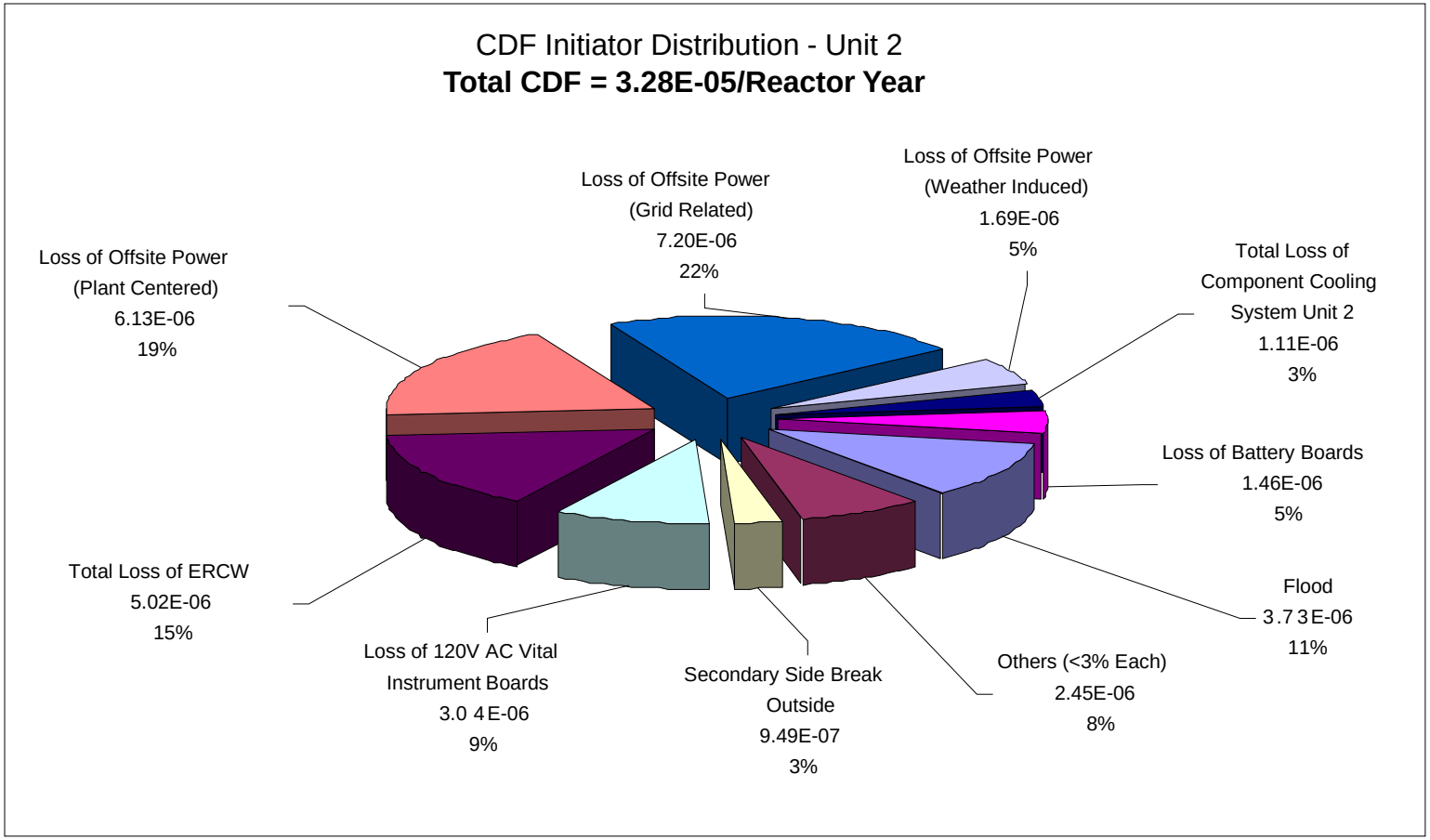
- Overall Progress
  - Final Safety Analysis Report / Technical Specifications - Complete
  - Emergency Plan – Template Submitted
  - Security Plan
    - Cyber Security – Submitted
    - New Rule Update – March 2010
  - Quality Assurance Program - Complete
  - Final Environmental Impact Statement - Submitted
  - Special Nuclear Material License – Submitted
  - Corrective Action Program and Special Program Closure Criteria Established – Inspections in Progress

Special Topics

Individual Plant Examination (IPE)

- Probabilistic Risk Assessment Dual Unit Model
- Key Development Documents
  - **ASME Standard**
    - Addenda to ASME/ANS RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications, ASME/ANS RA-Sa-2009, February 2009.
      - Defines PRA capability requirement criteria
  - **RG 1.200 Rev 1**
    - An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities, Regulatory Guide RG 1.200, Rev. 1, January 2007.
      - Appendix A provides the NRC clarifications and qualifications for the ASME PRA Standard

Special Topics



U2 LERF = 2.62E-6

Special Topics

- Findings/Enhancements
  - Peer Review Conducted 11/09
  - The peer review covered a total of 326 supporting requirements.
    - 9 not applicable to the WBN PRA.
    - 272 or 86%, rated as supporting requirements met, Category I/II, or greater.
    - 19 or 6%, rated as met, Category I
    - 26 or 8%, rated as not met.
  - Disposition and resolution of Facts/Observations evaluated and changes in progress
  - Peer team concluded PSA meets ASME/ANS PRA standard and that
    - Documentation is very thorough, detailed and well organized
    - Processes and tools are at the state of the technology
    - Qualitative assessment of the sources of modeling uncertainty for the Level 1 model is very comprehensive and well documented

Special Topics

IPE External Events (IPEEE) General Approach

- Key Documents
  - NUREG-1407, Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities
  - Generic letter 88-20, Supplements 4 and 5, Individual Plant Examination Of External Events For Severe Accident Vulnerabilities
  - Deterministic Seismic Margin Approach (EPRI NP-6041, Electric Power Research Institute, “A Methodology for Assessment of Nuclear Power Plant Seismic Margin,” Revision 1, August 1991.)
  - FIVE Methodology for Fire (EPRI TR-100370 Electric Power Research Institute, “Fire-Induced Vulnerability Evaluation (FIVE),” Final Report, April 1992.)

Special Topics

IPEEE General Approach

- Utilized WBN Unit 1 IPEEE Report as Baseline
- WBN2 approach for IPEEE will closely follow the approach used for WBN1
- WBN2 Implements same Corrective Action Programs used on WBN1
- WBN1 IPEEE program indicated no vulnerabilities and included only 1 modification for tornado wind (applicable to WBN1 and WBN2)
- Results for WBN2 are expected to match WBN1, with no vulnerabilities anticipated

Schedule

- IPEEE Design Phase Report Submittal – March 2010 Final
- Submittal – As Built Validation – August 2011

Special Topics

- Unit 1 and Unit 2 Integration
  - Staffing
  - Department Readiness reviews in progress
  - INPO Visit and Follow-up
  - Work Control
    - Work Orders reviewed by experienced Operations personnel
    - Work on Common systems uses WBN Unit 1 processes
  - Interface Removal for Testing
  - Meetings
    - Work in operating spaces reviewed daily
    - Problem Evaluation Reports (CAP) reviewed for operability by Operations personnel
    - Weekly with VP and direct reports
    - Chemistry/Environment with Preoperational Test

Conclusion

- Steady Progress in Engineering , Construction and Licensing
- Refurbishment Activities will ensure plant meets original licensing, design and equipment vendor specifications
- Project is on Schedule and Budget to Support Current Fuel Load Schedule - April 2012
- Stop work when it is required
- Appreciate Opportunity to Address ACRS on WBN Unit 2 Progress

QUESTIONS

ACRS Subcommittee Meeting Regarding

Watts Bar Nuclear Plant Unit 2

Status of Licensing and Inspection

Docket No. 50-391

March 3, 2010

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Agenda

- Licensing
- Construction Inspection
- Project Oversight

NRR Presentation of Status of Licensing Activities

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Review of Operating License Application

- Original Operating License Application – Sept 1976
- TVA Update of OL Application – March 2009
- Staff Review Status

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Safety Evaluation Report Topics

- TVA amendments to FSAR received
- Staff review in progress
- Project schedule managed with EPM
- Amendment Status
  - A92: Baseline FSAR for Unit 2
  - A93 April 09: preparation of SER inputs
  - A94 Aug 09: TVA responding to staff RAIs
  - A95 Nov 09: product review complete
  - A96 Dec 09: I&C platforms assessing completeness
  - A97 Jan 10: product review underway

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Corrective Action Programs

- Developed in 1985 in response to NRC letter regarding indentified construction deficiencies
- 29 Corrective Action and Special Programs
- Staff completed program reviews
- Inspection of implementation

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Generic Communications

- Approach to review
  - Reviews completed during licensing of Unit 1 (pre-1995)
  - Pre-1995 items reviewed with applicable SER sections
  - Items issued after 1995 separately reviewed
- Status of generic communications in SSER 21
- Recent focus on evaluation of Post-1995 items
- Status of NRR review – post-1995:
  - Review completed - 25
  - Waiting for information from TVA - 5
  - NRC Review in progress - 5

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Final Environmental Statement

- NUREG-0498, Final Environmental Statement
  - Related to operation of Watts Bar 1 and 2, December 1978
  - Supplemented in 1994 for Unit 1 operation
- TVA Final Supplemental EIS, February 2008 and January 2009
- Status of review
  - September 2009, notice of intent to prepare supplement to FES-OL for Unit 2 and conduct a scoping meeting
  - October 2009, public meeting near the site regarding environmental scoping process and to obtain comments
  - Contractor support for Draft supplement from PNNL
  - March 2010, TVA response to RAIs (non-SAMA)

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Radiological Emergency Plan (REP)

- Section 13.3 of SER
- TVA WBN REP submitted as a “site plan” in January 1982
- Having withdrawn the WBN REP submitted in 1982, TVA resubmitted WBN REP in February 1993 - reviewed only on Unit 1
- Supplement 20 to SER, February 1996
  - Includes FEMA findings
  - Concludes that requirements for full power license to Unit 1 met.
- Status
  - Awaiting FEMA finding on off-site planning
  - Staff RAI on onsite planning in preparation

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Physical Security Plan

- Currently approved site security plan
- Plan revisions in March 2010
  - Incorporate rule changes
  - Better description of the status of Unit 2

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Schedule

- Staff remains on-schedule with licensing and inspection activities to meet TVA's request to receive an OL by April 2012

Region II Presentation of Status of Construction Inspection Activities

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Inspection Activities

- Completed 2009 End of Cycle review
  - construction programs and activities properly implemented
  - effective controls were in place
  - no significant performance issues were identified
- RII expended 8837 staff hours on the project in FY09
- Two new Resident Inspectors selected (total of 4 construction residents)
- Reviewing ≈ 200 historical Construction Deficiency Reports for inspection applicability
- Monitoring construction activities for impact on Unit 1

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Inspection Activities (Cont.)

- Major inspections performed:
  - S/G eddy current
  - RCS welding for RTD bypass manifold replacement
  - Engineering
- Upcoming inspections:
  - PI&R
  - Engineering follow-up
  - Refurbishment
- Prepare for system preoperational testing (IMC 2513)
- Construction scheduling information improving but still a challenge

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Refurbishment

- Staff reviewing TVA's Refurbishment Program
- Inspection Procedure 37002 Issued
- Two phased inspection approach:
  - Verify required SSCs scoped into program
  - Sample a variety of implementation activities
- Focus on passive components
- Samples selected based on risk significance and potential damage from degradation mechanism

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Conclusions

- Construction activities properly implemented; no significant inspection findings
- RII has adequate inspection resources
- Required inspections have been identified
- Number of inspections has increased consistent with increase in safety-related construction activities
- Scheduling inspections based on TVA's construction schedule remains a challenge

Oversight of Watts Bar Unit 2 Activities

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Oversight

- Watts Bar Unit 2 Reactivation Assessment Group
- Established by charter in August 2009

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Oversight

- WRAG Charter Objectives
  - To provide oversight and management direction to determine whether the required actions have been reviewed by the staff, implemented successfully by TVA, and the staff's findings and conclusions prepared to ensure that Unit 2 meets all the relevant regulatory requirements and can be safely operated.
  - Make a recommendation to the Director of NRR and Regional Administrator, Region II, at the appropriate time, whether the activities discussed in NRR Office Instruction LIC-110 and NRC IMC 2517 have been successfully completed.

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Oversight – WRAG Membership

Chairman: Bruce Boger, Deputy Director for Reactor Safety Programs, NRR

Vice Chairman: Anthony Gody, Deputy Director, Division of Construction Programs, Region II

Voting Members: Project staff from NRR and Region II

Senior resident Inspector

Others: As needed

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Oversight - WRAG Activities

- Met in September 2009 and January 2010
- Held meeting with TVA on January 12, 2010
- WRAG Action Item Lists being tracked, resolved, and documented for closure