U.S. NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING

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SEPTEMBER 18, 2003

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The meeting commenced at 1:30 p.m.

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1:30 p.m.

MS. PETERSON: We've got quite a few people here today. It's a little bit different than we had anticipated with offices being shut down, we don't have the video conference we had expected. But we will begin with what we have.

I'm Cindy Peterson; I'm the Director of the Division of Reactor Safety here in NRC Region 3. Before we get into introductions, I'd like to talk a little bit about how we're organized here.

We do have people on the phone from Headquarters, which we will get to, as well as members of the public on the phone.

Because of the unique circumstances, we are going through out Headquarters Operation Center, which means that the bridge we're on is a recorded bridge.

That's atypical of a meeting of this nature, but I wanted to make sure everybody was aware of that before we began.

Today's meeting is to talk about the recently reported issues at Byron and Braidwood. There Exelon determined they may have exceeded their licensed thermal power limits.

So with that said, I would like to go to introductions. I'd like to first have the NRC introduce themselves here in the room, and then have Exelon and then we'll go to the phone.

MR. CALDWELL: My name is Jim Caldwell. I am today the Deputy Regional Administrator, as of Sunday I'll be the Regional Administrator.

MR. REYNOLDS: Steve Reynolds. I am the Acting Director, Division of Reactor Projects.

MR. HILLS: I'm David Hills. I'm a Mechanical Engineering Branch Chief here in the Regional Office.

MS. PETERSON: Thank you. (Inaudible).

SPEAKER: (inaudible).

MR. AINGER: Ben Ainger, Licensing Manager for environmental safety.

MR. BENN: I am Carl Benn (phonetic), site site director at Braidwood.

MS. PETERSON: Did we miss someone, I'm sorry. Thank you. I know we have at least one NRC person on the telephone. Bill, are you there?

MR. ROWAN: Yeah, this is Bill Rowan (phonetic), I'm a Project Director for Project Directorate 3 in the Office of Licensing and Project Management in NRR. I think, George Dick, are you on

the line?

MR. DICK: Yes, I am, Bill. This is George Dick, I am the Licensing Project Manager for Byron.

MS. PETERSON: Any other NRC people on the telephone? Since we don't have the benefit of visuals, are there any other persons on the phone?

We had anticipated somebody from inside NRC to be dialing in, so that person may join us. Thank you, everyone.

MR. DICK: Cindy?

MS. PETERSON: Yes, go ahead, George.

MR. DICK: If I just interrupt for a second, we're having a little bit of difficulty hearing folks unless they are close to the microphone.

We can hear you fine, but some of the introductions, as they went on, we weren't able to catch.

MS. PETERSON: Thank you. We have some people who aren't sitting at the table near the microphone. That's a good reminder. For the microphones, if the green light is on, it is live.

And if we have people elsewhere speaking, it would be helpful if they could come closer to a microphone.

MR. DICK: Great, thank you.

MS. PETERSON: You're welcome. So we have Cecil from IEMA (phonetic). Is there anyone else who would like to introduce themselves for the public?

(Introductions are inaudible.)

MR. ROWAN: Cindy, this is Bill Rowan (phonetic), just so you're aware, you know, we're here, and one of the things we have to do because of the hurricane is deal with contingencies, Licensees, relative to security orders or something along those lines.

So I might have to drop off the line. And I'm not going to interrupt, if I have to do to that, I'm just going to get off the line.

MS. PETERSON: Okay, we understand, Bill.

MR. OWEN: Okay.

MS. PETERSON: The other thing, because we are going through the Operations Center, should they need to recover this bridge for ongoing events, we'd lose the connection also.

MR. OWEN: Okay, okay, thank you.

MS. PETERSON: Mr. Tuckman (phonetic), have you joined us? Let's begin. On August 28th, Exelon reported to us that three of their units may have exceeded their licensed thermal power limits.

Byron Unit 1, potentially up to one and a half percent. Byron Unit 2, 0.6 percent, and Braidwood Unit 2 up to .08 percent. Now today we want to talk about those issues.

We want to talk about the conditions and circumstances that led up to the discovery of those that you reported in August, and why it took so long to get to that discovery point.

We're also interested in the current conditions of those units. Also, as we understand, you've got an investigation ongoing, we'd be interested in your information, to date, on what you've found and what your future actions would be.

And also we're interested in what assurances you can give to us that suspicions that you're making at this point in time, those that you plan in the future and those that will be made before your full investigation is complete.

What assurances do we have that similar long-standing issues wouldn't have the same decision making process that led to this protracted period of time for the thermal power limit.

Again, since this is a public meeting, I remind you if there is a need to discuss proprietary information, we would need to hold that to a closed

session. Probably the easiest thing to do, if we need to have a proprietary discussion, would be to finish the public portion of the meeting and then close the meeting.

Now regarding the public observation role, we would ask any members of the public that are present or on the phone to hold comments or questions until we conclude the business portion of the meeting between NRC and Exelon.

And at that time we would open it up for any comments or questions that members of the public may have. At this point, if anybody has any other openings, we turn it to Exelon and your presentation.

SPEAKER: Just as a matter of protocol, we do have feedback forms. I think they're on the (inaudible). For any members of the public, we always try to get any feedback from our public meetings and how to improve them.

So, please feel free to pick up a form and fill it out. You can either leave it with us or mail it in.

SPEAKER: (Speaker is inaudible.)

SPEAKER ON PHONE: Hello, if you can hear me out there, there's a problem with the audio, we can't hear the speaker, or I can't, anyway.

MS. PETERSON: Okay, we'll try to rectify that.

SPEAKER ON PHONE: Okay, turning the microphone on I think should help.

MS. PETERSON: Oh, a bright green light, versus a dim green light would indicate the microphone is live.

SPEAKER: Okay, thank you very much.

PARTICIPANT: Before you get started, on the, you mentioned that Jack Skoals (phonetic) has commissioned a group. Is that, what level is that?

PARTICIPANT: It's going to be led by one of our site vice-presidents who was not involved with this, Bob Bement from the Clinton Power Station.

And there will be other technical individuals on the team, individuals from our oversight board.

PARTICIPANT: That is internal, right?

PARTICIPANT: That is internal. We have had members of our Nuclear Safety Review Board look at the information that we're going to go through on the slides today, looking for opportunities for statements for, you know, other questions such as that.

But in direct response to your question, the decision making evaluation effort. Okay, James.

SPEAKER: Okay, that being said, thank you, Chip. Can I be heard all right on the bridge now.

PARTICIPANT: Yes, you're coming in and out, but I can hear you.

MR. MICER: Okay, thank you very much. As I said earlier, I'm Jim Micer (phonetic), Vice President of Engineering for Exelon.

What I'd like to do first is, quickly, the agenda is on Page 3 of the packet, but I'd like to quickly take us to Page 4.

As you'll see shortly, Bill Cuba (phonetic) and Brad Adams (phonetic), will describe the details on the items that are bulletted on Page 4.

Their discussions focus on the background, investigative efforts over time, the root cause and safety implications and our actions going forward.

I would like to open the meeting with a perspective on the overpower issue and to lay out for you what our future actions will be.

As you are aware, both of our organizations have expended a great deal of energy and resources on figuring this issue out, over the past several years.

Many communications have occurred between

our respective staffs, and we have literally spent thousands of hours and hundreds of thousands of dollars in attempting to resolve this issue. While we're satisfied that we have finally determined the cause and a pathway for resolution of the issue, we are dissatisfied with the fact that it took us so long to identify that cause.

One action that we're taking to ensure that the cause has been fully explored and challenged, is an independent, technical evaluation of the root cause conclusion.

This evaluation will be in addition to our normal senior management and plant operations review committee reviews, and will be completed prior to further implementation of the ultrasonic flow meters at the station.

Another aspect of this issue, and perhaps the most critical, is the lessons learned with respect to our decision-making process.

We preliminarily evaluated portions of that process over part of the time period. However, as Chip mentioned, as CNO Jack Skoals has commissioned a separate team to thoroughly critique the decision-making and management actions that were applied over the large span of this issue.

As Chip said, the team is led by Bob Burnett(phonetic), the Site VP from the Clinton Station and will report their results to Jack Skoals.

We will systematically apply these lessons learned to our decision-making processes and, as Chip said, we will share the lessons learned with you in the evaluations.

I'd like to now introduce Bill Cuba, the Corporate Engineering Director, who will start with the background on the ultrasonic flow meter.

MR. CUBA: Thank you, Jim. For this portion of the presentation, what I want to do is I'm going to provide some background on the ultrasonic flow meter technology, implement at both Byron and Braidwood and then go into the chronological events of the issues and investigations that we performed.

So, if you go to Page 6, the purpose of the ultrasonic flow meters, which shows the UFM technology, because it does more accurately measure feed flow.

And it was based on this accuracy that we could potentially recover megawatts lost due to the feed water Venturi of flow and accuracy.

This installation was not part of a measurement uncertainty recapture of a K uprate. So

there was no intent to raise power beyond the existing license limits.

The intent was to measure feed water flow more accurately. Based on the design of the flow meters, the ultrasonic flow meters, they, I believe they have gotten accuracy down to about .5 percent, .25 percent.

The feed water flow Venturis can be as accurate as, I believe, around one and a half percent. Okay, so you can have feed water Venturi falling. There's inaccuracies with the instruments associated with the flow Venturis.

Okay, so to move on, on Page 7, there's a simple diagram of the ultrasonic flow meter. And just to walk you through it very briefly, if you take a look at the sensors alpha and sensors bravo, a signal is sent from alpha and it strikes an eddy current within the flow stream, and these are embedded in the flow stream. Based on that characteristic of that eddy, it modifies the signal and then that signal is collected. (Inaudible) flow sensor, a similar signal is set, and again it hits the same eddy.

It hits the eddy current and modifies that signal. And those two signals are collected and then compared. And if the compared signals match each

other within a statistical accuracy, in a time delay calculated, and that's, that time delay is what we call the cross-correlation.

The comparing of the two signatures. And then based on that time delay that's calculated, at a known distance between the probes, you can go ahead and calculate a flow velocity.

PARTICIPANT: (inaudible)

MR. CUBA: It does to the calibration of the equipment.

PARTICIPANT: How far are they apart?

MR. CUBA: About a foot apart, twelve inches.

PARTICIPANT: (inaudible)

MR. CUBA: Okay, so a time delay is calculated. With a known distance you calculate a velocity based on the properties of water you then get to a mass flow rate.

That's when we get to the ultrasonic flow measurement, and that's flow rate. And then to come up with the correction factor, which is what we use, you take the ultrasonic flow and you divide it by the Venturi flow, and that becomes your correction factor. If you move to Page 8, that's basically what I've discussed associated with the drawing.

If you move to Page 9, Venturis are located on the individual branch line. Just centering the steam tunnel goes down the steam tunnel all the way.

The UFMs are fairly close. They're upstream of Venturis. I don't know, do we have a distance? Ten diameters? Ten pipe diameters? Which is roughly 130 inches?

You have a main header, d-reg valve, okay. Then you have the ultrasonic flow device, the Venturis, then you go on to (inaudible). And there's a drawing.

Okay. The installations were supported by our ultrasonic flow meter vendor. They were installed in accordance with vendor procedures.

The NRC subsequently approved the ultrasonic flow meter technology in March, 2000, for use in Appendix K (inaudible). And the vendor procedures that we use are consistent with those approved in the NRC topical report.

The ultrasonic flow meters are installed on an H-feed water branch line supplying the steam generators and they're installed in the same manner as both Byron and Braidwood.

They are installed on individual lines.

They are also installed on common headers.

PARTICIPANT: (Inaudible).

MR. CUBA: Correction factors available are used as a multiplier in our calemetric(phonetic) calculation and correct feed water flow, and then feed water flow is a major input to the calemetric to determine the reactor power.

We determine correction factors as snapshots. They are determined on a standard periodicity(phonetic). Also, after a defined change in power, which has the potential to (inaudible) a Venturi and/or during plant parameter trending, and that's done by our thermal performance engineer.

And all that is controlled by site (inaudible). The periodic is every nine months, okay. And then after a potential for a plan scram we would have to go ahead and do a recalculation of the correction factor.

And then also under a step change in load or a major power (inaudible). At that point the thermal performance engineer would go ahead, look at the secondary site parameters and then go ahead and determine a correction factor.

PARTICIPANT: (Inaudible).

MR. CUBA: We do calculate thermal power

daily. This correction factor is a multiplier on the feed water input to the calemetric. The multiplier correction factor is not changed, okay. So it is calculated periodically, it's just (inaudible).

Okay. Moving on. Next, I want to go over the chronology of issues and investigations associated with the Byron and Braidwood megawatt differences issues.

Going to Page 11, the ultrasonic flow meters were implemented at Braidwood in June of 1999, and they were implemented at Byron in May of 2000. And I will go over why the gap between the two time frames.

Installed and used to determine thermal power. They were installed in May of (inaudible). We noticed these electrical output differences upon initial installation and also during the five percent power uprate in 2001.

And it was really as a result of these differences in megawatt output that we performed multiple evaluations from '99, through 2002, to determine a reason for this difference.

Installation was in '99. Turn on at Braidwood was in '99. Turn on at Byron (inaudible). Moving to Page 12, like I said, for Byron, because of

the differences, evaluations were performed between June, 1999, to May, 2000.

Items that were re-evaluated include the installation was re-checked, the software was re-checked, the computer. We tried to understand the differences.

We did dual-instrument testing with the ultrasonic flow instrument and UFM bender. And what we did there was we, on one of the feed water lines, we actually installed a second ultrasonic flow meter just upstream, and compared the two results.

And we got a very good correlation. We looked at the Venturis, both at Braidwood and Byron to look for clues, and we found a difference between Byron and Braidwood in the cleaning methodologies in the Venturis.

And why that is potentially significant is Braidwood used a power wash, where Byron wiped their Venturies and their piping down. A power washing could roughen the pipe which could actually make the ultrasonic flow meter read more conservatively.

So what we did at Byron was we took a flow meter and we put it down stream of anywhere that would be affected by this power washing.

And, once again, we came up with a very

good correlation. So there was no effect with respect to whether we wiped down the Venturies or we power washed them, to see if that was causing the difference associated with the feed water flow.

We also did design reviews, especially focused on secondary site plant parameters, heat rates implementing procedures and OPECS.

And a lot of those reviews did identify differences, especially in the secondary site but no root cause could be established for that difference.

Now based on the multiple checks we did, following vendors instructions on the installations, our evaluations concluded that the Byron ultrasonic flow meters were implemented correctly, they were installed correctly and operating in the criteria (inaudible).

Three times. Then we're going to talk about (inaudible). Okay. (Inaudible). That's correct.

Okay, moving on to Page 13, following the upgrades in 2001, at both Byron and Braidwood and with the differences in megawatt electric output still present, we put together an independent Exelon review team, which performed that review in February, 2002.

And those were Engineers from the Mid-

Atlantic Region, Thermal Hydraulic Engineers. We did not include our ultrasonic flow measurement vendor in those particular evaluations.

And really what we asked them to do is take a look at what we've investigated so far, see what else you can come up, see if there's something we missed.

PARTICIPANT: Hey, Bill, you might want to cover what drove that investigation, just to provide linkage from --

MR. CUBA: Well, really what drove that, again, tied to the uprates, was a, a CR was written. Once we had Byron and Braidwood Unit 1's uprated and with all the turbine changes and equipment changes we were able again to do a kind of a one-on-one comparison between the units and (inaudible).

So that was an actual CR written. And that was in response to that CR condition report. The team did look and they did identify- Do you have a question?

PARTICIPANT: I wanted to just go back to the '99-2000 evaluation, because I was looking at the Condition Report.

One of the reasons why you were checking this out, besides the fact that you were getting more

megawatts out of Byron, was that all, almost all of the parameters were higher at Byron.

MR. CUBA: That's correct.

PARTICIPANT: Which would indicate unless you just got lucky enough that everything was on the high side of the tolerance, all of them were.

So that would, you know, good engineering judgement would tell you that that's a problem. And then you did your assessment.

And I was reading in the conclusion of the document, after doing that assessment, and it said that the conclusion was that there was not enough evidence to refute the primary flow measurement standard, which is a different conclusion than what you just said.

It's saying that, you've come at it from a different angle. You have the question and you are not, you're, I guess, basically saying that the, even though the question exists, you can't say that it's not accurate, instead of saying it is accurate.

MR. CUBA: And maybe I misled you. In the June, 1999, through May, 2000, we concluded that the ultrasonic flow meter was installed, per design, per requirement.

It was measuring flow correctly. And it

was on that basis that we decided to go ahead and implement them. Okay. But that was based on that technology, verifying the installation and verifying it met all the criteria for installation.

PARTICIPANT: So this is a Byron document. So this might be different than what you're talking about. It was a Byron position document.

MR. CUBA: That was the apparent cause evaluation that was performed. That is a roll up document from all the activities to that date regarding this issue.

So, what Bill is communicating is essentially the conclusions that were reached through that evaluation.

PARTICIPANT: Okay, but I was just going on the way it was stated was that you were basically saying, since we can't prove it's not wrong, we're going to say it's right. Is that the way you did it?

MR. CUBA: I think what you're getting to, Jim, is, is a question that we're asking ourselves in the decision.

We worked really hard to look at all of the various installation, start up tests and various computer checks on the device, continually looking at do we meet the standard in each one of these

parameters in terms of setting up the machine, and so on and so forth.

And upon reaching the conclusion that we did, we were confident because we met all of the acceptance criteria we had set up properly that it was therefore reading accurately.

And what we see as we look at this is, that there were opportunities where there was other data that was telling us we should look in a different direction and we didn't (inaudible).

PARTICIPANT: Well, I have the advantage of 20/20 hindsight, but I was just looking at the information you had, which would tell you generally that there was something wrong in the direction which you had in question.

And then you went back and looked at the, how it was installed, how it was operated. You checked all the things out you could check out.

But the way it was stated was that since we can't prove that it's inaccurate, we're going to submit it's accurate. And that's what I was asking, was that the way the conclusion was reached?

MR. CUBA: I think based on the conclusion of the three reviews that were performed, the ones from '99 and 2000, the independent review and then the

one that followed after that, in conjunction with that, combining all three of those reviews, we did conclude, from a technical standpoint, that the technology was working correctly and we accepted it.

So, again, as part of the independent review, an issue was brought up identifying two burn-up anomalies and in particular the let down curves (inaudible).

As a result of that question on burn up and while it could be investigated, Byron went and removed the correction factors and went through the Venturis while that investigation was going on.

PARTICIPANT: This was Rich Lapiori (phonetic), who was the (inaudible), at that point and myself, we did work with this independent team when they brought their conclusions. It was a Friday evening, and brought the question of the fuel burn up.

That was a different question than had been asked previously. In response to that, until we further reviewed that question, we did remove the constant and put the plant back in the Venturis for that period of time.

And subsequent to that, as Bill will go into, we did analyze in more detail that aspect, and concluded that we were within expected ranges and

subsequently thereafter we reinserted the count.

MR. CUBA: They looked at the core models, completion prediction, industry, other industry variances and Boron letdown curve and nuclear fuels to determine that they had the variation seen could not conclude or quantify that type of difference.

PARTICIPANT: I'm not a Nuclear Engineer, especially on the fuels, but how accurate can you get on fuel burn up?

MR. CUBA: I can't answer that question. But when they looked at that, the sensitivity looking at your model, I don't think (inaudible).

PARTICIPANT: Because I was just visiting Dresden(phonetic), and I understand they were told they were about to, they were using more fuel than they thought.

So they thought they were going to have to go into coast down a couple months ago, and they're not yet into coast down, which is to say it's not as accurate as you might think. So that's why I was asking.

MR. CUBA: That is correct.

PARTICIPANT: This would be a weekly correlating comparatory. So our prediction pulls our ability to estimate cycle length burn up in the order

of week from beginning of cycle to end of cycle.

So, by no means, can we look at burn up over a month period and then extrapolate what thermal power is. It is, however, a, there are opportunities, especially on the (inaudible) looking (inaudible) to either corroborate or refute information (inaudible).

Your question, Jim, I would say there is it is not without value. It is certainly not something they can immediately draw a conclusion.

PARTICIPANT: No, I thought it was a good thing to look at, I just didn't know how accurate it was and how, whether you could use that an ability to make a decision from.

MS. PETERSON: During the time that you went back to the Venturis, what megawatt change did that cause? What was the result, I should say?

MR. CUBA: It would be roughly just removing the constant. I think at that time we were roughly around two percent on either one. Maybe 1.4 on (inaudible) two. It may not be exact, but 50 or 55 megawatts total, approximately.

So it was, again, based on the nuclear fuels review and the fact that based on the independent review, they really could not find any other new insights, other than those previously review

at the site.

Turned the, or went back to the correction factors. However, they did recommend that the Exelon continue and put together an additional team together to do, again, to keep looking at this issue and perform a detailed evaluation.

Which, takes us to Page 14. So as a result of that independent team's recommendation, we did put together a team, again with the ultrasonic flow meter vendor, corporate engineering and flight engineering, again to review the UFM implementation.

But this time, a much more detailed, hand over hand type of review of the installation where we hand the calemetrics. We actually looked at the piping, the piping design, the material in the piping, transducers, cables, software.

We actually took a machine from AMEG(phonetic), used it on the system and got correlating results. We took the Braidwood machine, put it on Braidwood, got correlating result.

We took calemetric data from Byron and plugged it into the Braidwood calemetric to see if that would make a difference and we got the same result, and vice versa with Braidwood input into Byron.

PARTICIPANT: When you say you're getting correlating results, what do you mean by that?

MR. CUBA: Meaning very close. Meaning if we calculated through the calemetric, 98.2 percent power, we get something very close.

If we took all that same data and put it in the Braidwood computer, put all that data in there, we would get a very close (inaudible), to see if somehow we could find where there might be a difference causing the different output.

PARTICIPANT: And you may not be able to answer this, because I know you're still working at the root cause and the time line and how you made your decisions, but you concluded that, based on the burn up, that the correlation factor or that you could use the correlation factor and you reinstated it.

But the recommendation was to continue to further review it. Why?

MR. CUBA: Again, there were differences noted, but they could not come up with a root cause or an explanation for the difference. So they felt it needed to be pursued further.

PARTICIPANT: So, if not, did you not (inaudible) do it here, maybe it's a question you can take back with you. Is that, would that be your, if

you still had a question about whether you were operating at your thermal power limit, would it be normal to reinstate the correlation factor which would put you back above it, if in fact you were?

I recognize you did not believe you were, but there was still enough question in your mind that you wanted to further review it.

Is that going to be the normal, I guess the question is, is that what you would, your expectation, and maybe, like I said, maybe you can't answer that now and maybe you can look and see what the thought process was.

PARTICIPANT: Yes, we're clearly looking at that aspect, I think, rather than speculate. And two, what this will boil down to is when do we arrive at enough information that appears to be contradictory or nonsupportive (inaudible).

It's not infrequent for us to have to resolve (inaudible) or disposition question. It's likely not a day that goes by at a station where in a condition report we capture some kind of question.

However, I see your point is, that is essentially the genesis for the (inaudible) how do we process it? What points are, you know, triggers (inaudible) and revaluate our current (inaudible).

So, I see your point. And I think that will be the central theme to follow on.

MR. CUBA: Okay, good. We will be interested in the answer to that.

Moving on, we also did a different type of independent type testing and that was we, this was the first time we put an ultrasonic flow meter transducer on the main header that that then feeds each of the individual branch lines.

Now we were able to do a comparison between a line that feeds all the individual feed water lines.

And when we did that, we did get a, what I'll say is a correlation within the accuracy of the ultrasonic flow meters, but it was at the high end of the accuracy (inaudible).

This was also during a period of time when we had it scheduled that we were starting our coast down, so this was done at 92 percent power. And these are two key items, I think here, that we need to go back and look at.

Because at the time we did this, and with the understanding of how the ultrasonic flow meters work, they should be power independent with respect to accuracy.

This would later turn out to be something that we found out as part of our root cause was not the case, but the problem that we found. And Brad will go into that.

So the study, based on the correlation within the accuracy of the ultrasonic flow meter design, concluded that the ultrasonic flow meters did indeed measure flow per design and were implemented properly.

And that was based on that correlation test. And then all the, all the reviews we did on the installation.

PARTICIPANT: (Inaudible). Are you going to talk about (inaudible) the March, 2002, comparison testing and what I understand was (inaudible) some sort of test you did this summer (inaudible)?

MR. CUBA: Yes, I will. I'll talk about that.

PARTICIPANT: The same test but there were differences, I guess.

MR. CUBA: Well, yeah, because when we repeated this test on Unit 1, it turned out that we repeated it at full 100 percent power. Okay.

And when you get into the root cause of what the problem was, a design that was power

independent was actually not working correctly, which made the correction factor power dependent.

PARTICIPANT: It was more accurate at full power?

MR. CUBA: The accuracy for the correction factor changed in a non-linear fashion as power changed. So it's not supposed to --

PARTICIPANT: It's the fact that we took the data at 92 percent power (inaudible) masked the fact that there wasn't good correlation. It wasn't until we took the data at 100 percent power this year, that that really became evident.

PARTICIPANT: Is that something, is that, that's new information from the vendor? I mean, is the vendor aware?

PARTICIPANT: That's the information based on our test that we completed. That (inaudible) Byron on Unit 1 in late August.

PARTICIPANT: Is that something that needs to be put out to the rest of the industry?

MR. CUBA: That is part of the root cause, and how that occurred. And we will get into that --

PARTICIPANT: That's something that needs to get out?

PARTICIPANT: AMEG guys issued a tech

bulletin on this specific issue, and I know that they do have extended a condition review ongoing for their other applications.

MS. PETERSON: That's correct, we issued a tech bulletin and we will also be discussing all of this in detail with NRR next Friday.

PARTICIPANT: I'm just concerned about any other plants out there that might want to do their calibration at lower than 100 percent power and they would not be aware that that's not a linear --

MS. PETERSON: All of our customers are aware and (inaudible).

PARTICIPANT: There's also one additional point here is one of the things that, one of the opportunities is when we did the comparison testing, we found that our data fell on, we had an acceptance ban, but we were close to the edge on the acceptance ban.

And that's something else in the root cause in the evaluation we're looking at was, there's not enough information and you should have had enough information to trigger additional follow through.

So I wanted to make sure that that point was covered.

MR. CUBA: And then, moving on, one of the

recommendations of the 2002 study was to take data over a long period of time, continuously, to see if we could uncover some kind of response or anomaly that we could tie to plant conditions or something only not in the plant to help us determine what the cause or potential cause of the mismatch between the two units was.

And this was going to be a lessons learned. This turned out to be a missed opportunity as well. We collected the data, we did not follow through and give this long term data to the vendor to help them analyze it.

We were really weak in developing a plan to get this data collected, collected under certain conditions, and give it to the vendor. And when I go ahead and talk about the final plan.

When we got to the root cause, we took that and shored that up to make sure that they got all the data they needed to help us with this investigation.

MS. PETERSON: What did you do with the data you were collecting?

MR. CUBA: Essentially, it was collected at the site, but it was not forwarded to the vendor.

MS. PETERSON: To try to evaluate it in

any fashion, or it was just collected and they were not evaluated?

MR. CUBA: They were evaluations that were ongoing as part of the, I think the document Mr. Caldwell(phonetic) was reading there.

It says, you know, 2000 document. So there was evaluations that were ongoing, but the specific data that Bill is referring to was taken, but it wasn't forwarded on to AMEG.

MS. PETERSON: (Inaudible) was just Unit 1 or was it Unit 1 and Unit 2 of Byron?

PARTICIPANT: Continuous data on Unit 2.

MR. CUBA: The other question that was asked was what did we do with that data? Were we just storing it? Was anybody looking at it?

PARTICIPANT: That specific data that they'd asked about, Jeff, was not reviewed by (inaudible).

PARTICIPANT: Continuous data from the UFM instrumentation itself.

PARTICIPANT: The four? Or is the four compared to the before?

MS. PETERSON: Again, just Unit 2.

MR. CUBA: Unit 2 (inaudible).

PARTICIPANT: After the completion of the

tests (inaudible) being a temporary installation was removed from the (inaudible) procedures for temporary modifications to the plant (inaudible) other test equipment, it was removed after that test.

MS. PETERSON: And I just want to ask one question you may have answered already. After you did the comparison test on Unit 2, back in March of 2002, did you see the signal noise that you saw just recently.

MR. CUBA: We did not see the signal noise. But we did not, let me clarify that. We did not look for the signal noise in the fashion we did in 2003.

MS. PETERSON: Have you been able to go back and look at the data and see if the signal noise was there?

MR. CUBA: You'll have to help me. I"m not sure if you can go look at that data.

PARTICIPANT: I can answer that question. The data was in the context of the modulation. It's not (inaudible). So therefore we cannot go back and extract that data.

But we have data (inaudible).

MS. PETERSON: Okay, so that information is different than what was being collected for

continuous data collection.

PARTICIPANT: What you're collecting (inaudible) in the continuous data as the actual (inaudible).

MS. PETERSON: Okay.

PARTICIPANT: There's no data used to calculate the (inaudible).

MS. PETERSON: And it's not the raw data, it's the, what comes out after the calculation.

MR. CUBA: (Inaudible).

PARTICIPANT: A couple days worth of work when you did remove the insulation, prep the piping, assure the dimensions, hook up a bracket to calibrate the probes. You know, two days, half a week's worth of work.

PARTICIPANT: (Inaudible).

MR. CUBA: A combination of technicians from the vendor with some site support.

MS. PETERSON: I have another question. I'm sorry. I guess this was not clear to me. If the testing was done on Unit 2, we had a concern with Unit 1. What testing was done on Unit 1?

MR. CUBA: The testing, the comparative testing was done on Unit 1, okay.

MS. PETERSON: Unit 1, okay.

MR. CUBA: Okay. The data collection was being collected on Unit 2, because they had looked and they were measuring for a correction factor and had one anomalous reading on the two alpha.

So we were collecting data to see what potentially could be causing that. So he was collecting data for that.

PARTICIPANT: So the way I would characterize that on a little higher level is the expectation was over time to collect it on both units, and Unit 2 was done first out of convenience, because there were existing questions on that unit?

That was the unit on which the (inaudible) at the time. However, as we said earlier, the data was (inaudible).

So the important point on 14 is, that there were two opportunities that we believe in the decision making (inaudible).

One was the collection of data and the second was the fact that we were on the outer band of (inaudible), the main header in the branch line.

And neither we nor our vendor said find the outer band, we really need to call the (inaudible). We met an acceptance criteria, but not by (inaudible). I think those are both important.

MS. PETERSON: Thank you.

MR. CUBA: Moving on, the last quarter of 2002. Resident Inspector did issue an unresolved item in this area. We did receive the letter to Exelon concerned about Byron's Unit 1 thermal power level.

We did conclude with their response based on the testing we had done previously that the Unit 1 ultrasonic flow meters were indeed installed consistent with the vendors procedures, and that the Unit 1 was operating within its licensed thermal power limit.

Now to put things into perspective, it's four years, we've got three major investigations we still have the major or we still have this difference in megawatts electric between Byron and Braidwood.

There's regulatory interest. So, we sat down and we developed a plan. We knew we had to organize this plan.

We had to get the right data. We felt we had to get data, not only at Byron, but also at Braidwood, so we could get the right data, the data possible to help us evaluate the issue and kind of broaden our scope and get data trends.

And from the lessons we've learned on collecting data on Byron, on Unit 2, that became also

part of the plan.

MS. PETERSON: Back here, in your remarks, that NRC's interest in it prompted you to step back and look at it and make this plan for attack.

MR. CUBA: I think it was a piece. I think it definitely had an influence.

MS. PETERSON: Can you maybe tell me a little more about that?

MR. CUBA: Well, as Jim said in his opening remarks, we have been working with this investigation for several years, okay.

And we've put a lot of time in it, a lot of money, and we still were not yielding results. And now we're getting questions from you about, hey, what's going on?

PARTICIPANT: In addition, Cindy, we did have a meeting of NRR in January, following the issuance of the letter and (inaudible) we did get some good input with respect to some ideas going forward, in terms of things that they perceived that we should look at, based on their experiences not only with this technology, but with some of the competitors (inaudible) in the industry.

So that was factored into the thought process and market this year also.

MR. CUBA: Yeah, Cindy, just to walk everybody through the sequence here. In January, mid January we got a letter from you all asking the question on the over power at Byron.

And we said, you know, look, we'd like to come out and meet, the meeting was at NRR. The Technical Coach, Bill and Brad, being two of the primary folks, went out to NRR.

And as Brad stated, they went through a number of the issues. Here's what we know. Here's what we don't know. Everything that we've walked through.

And there appeared to be a level of increased understanding on both sides. Both from our standpoint and what your questions were, and from the NRC standpoint, principally NRR, what we had done and why were drawing the conclusions that we did.

Subsequently, I believe it was about two months later, we had some additional questions to go through and at that point we started working with NRR and said here's the ones that we can answer now.

Here's the ones that we don't know if we will ever be able to answer. And then lastly, here's, there's a portion of these that we think we could answer with going through what we call our test plan

here.

And we're willing to implement this test plan to get through to answer the rest of these questions. It was something that was set out and that was being walked through when we ultimately discovered that while we were looking at this testing process to go from data collection from, in essence, July through early 2004.

So there was a concerted effort here to get to that, but if you look at the NRC's involvement, you know, I think everybody would have to say, yes, obviously when you get a letter from the NRC it raises, you know, it gives you another opportunity to pause and reflect.

And when the RAI questions came out, some of those we weren't in a position to answer. We did decide to go forward and implement the test plan.

MS. PETERSON: Had the NRC not made those inquiries, not had those questions, do you think you would have gotten to the point of identifying the issues that you identified in August?

MR. CUBA: That's a, you know, Steve and I talked about that yesterday. And that's a good question. Not in August, is probably the safest way to answer that.

You know, ultimately, I think that as additional operating experience became available and this continued to get looked at, would we have come across it and when we would come across it, I don't think we can answer that.

MS. PETERSON: But you didn't have a plan in place at that time that would have driven you to collect this data, is that correct?

MR. CUBA: That's correct.

MS. PETERSON: And, if I understand correctly, once that condition report was issued, you were considering the issue was (inaudible). The condition report you had mentioned earlier. The one that was identified in January.

PARTICIPANT: (Inaudible) evaluation, there were a couple of follow up action, out of that (inaudible) to continue to look. But not with the rigor of the plan that was generated.

MS. PETERSON: Okay.

PARTICIPANT: But there were, you know, continuing a couple of actions to review again fuel performance over a cycle, continue to trend. There were actions attached to that (inaudible).

But, like I say, not with the same complexity of the plan that was generated in March.

MR. CUBA: And one additional point that was, in having been involved in probably all the discussions, one of the drivers, and, Cindy, I think the NRC definitely played a part.

But one of the drivers in all the discussions were what possibly can there be that we're missing? I mean from our evaluation, from our vendor's evaluation, from everybody that looked at this.

Outside technical experts, everybody said it's installed, it's operating in accordance with its design you guys have implemented. Your, the calibrations are good.

And the test plan was developed for just that purpose, to say what else could there possibly be that we're missing. And a number, a significant portion of the test plan was going to go back over ground that we had already gone over, just to make sure that there wasn't something we missed.

So, it wasn't, you know, it was something, the test plan itself was something that we developed. It wasn't, the NRC didn't tell us you need this test plan.

You guys asked us questions and we thought that that was the best path to resolution, to finally

and completely address this issue.

MS. PETERSON: If I understood your earlier answer, had we not asked those questions, that test plan would not have been developed?

MR. CUBA: We wouldn't have found it by August. To go back to my earlier answer, I mean, you know, I don't know if ultimately if, as Steve said, there were actions to follow up.

Would we have gotten there, when we got there? That answer, I believe, is clearly no. Would we have gotten there eventually? You know, that's a tough thing to answer.

PARTICIPANT: For example, one of the longer term actions coming out of that was to do just what one of these steps is and collect this long term data, okay.

And that was one of the steps in our plan. Would it have been part of this overall schedule, I don't know. But we definitely had to go and take this long term data and get it to the vendor to try to understand, try to verify that the data was being or the correction factor was not changing over time due to conditions in the plant.

You know, to go find out and try to determine that. And that became part of this plan.

There were other parts of the plan in response to the NRC letters.

I mean that was the same group involved with testing. We assigned owners to help develop the responses to the question area.

MR. CUBA: And I don't know if Bill and George are still on the phone, but you know, in understanding that you guys don't typically put yourselves in consultant mode, but based upon the meeting in Washington, we were staying open to ending all inputs.

Because from our internal and external evaluation, we couldn't find it. So the meetings and discussions that were occurring with NRR, were in that context.

They weren't, hey, we have this question and we answered and, you know, as shortly as possible. It was more in the exchange of information, here's what we do know, here's what we can figure out and why.

And even as we worked through the development of the RAI questions, that was the spirit in which the questions ultimately came out, was in that cooperation.

And from a technical approach, what could

we be missing because, and we appreciate, as those guys said, there's a couple of folks in NRR that had pretty good insights that we immediately took back and applied at the plant.

To continue on, I'm on Page 17. We discussed a little bit about investigating long term trends. We had this issue where we had collected data and essentially done very little with it.

So, what we did was we installed a direct data link from the data being collected by the ultrasonic flow meters straight to the vendor.

So he could study it daily, and the other reason was, is we could watch the correction factor trends during steady stay power, reduced power, during power changes, and really pre and post refuel outage.

Potentially Venturi affects. If the correction factor shifted, shifts due to power, which it's not supposed to do.

So, we got that data directly to the vendor, no middle man. They could collect all the data they want to help us to try to evaluate the problem.

The other item is we did gain some insights when we put on the common feed water header and compared it to the individual branch lines.

Now we only had one point, and that was Byron. So we wanted to collect Byron Unit 2, Braidwood Unit 1, Braidwood Unit 2, to get additional data to check out to see if there was correlation, to see if Byron 1 is an (inaudible).

So we moved ahead with the plans. As a result we did our first test at Braidwood Unit 1. I'm on Page 18. We did a comparison that showed almost identical correlation between the common header and the individual line, ultrasonic flow meter.

We had a very good correlation with respect to that testing. We then moved on to Byron Unit 1. Again, this time the difference was we were at full power.

We did the comparison on the feed water header to the sum of the individual lines, and at this time we were outside the statistical allowance.

And what we did, signal noise was observed. So an additional test using spectrum analysis was done. And we noted that there was, under the spectrum analysis, and this gets into part of the root cause, there was no noise on the main feed water header, but we actually saw noise on each of the individual four lines.

And we'll get into that in the root cause.

PARTICIPANT: (Inaudible).

PARTICIPANT: Oh, if you bear with us, I'll talk a little bit about that root cause and talk about the (inaudible).

MR. CUBA: So we had a definitive problem now identified where we were outside the tolerance between the two measurement locations, and we now had noise indicators.

So, with the problem identified, we made the decision at that point to go ahead and reduce power. And I'll turn it over to Steve.

PARTICIPANT: You know, at the site we're obviously watching and monitoring the site very closely. Brad came to me as soon as there was some verbal information regarding his variance and outside of what was expected between the common header and the individual loops and the potential noise issue.

So, at that point, we took action similar to February of the year before when there was a question of new information.

We removed (inaudible) and went back on the Venturi flow. We did that on both units that day. Particularly Unit 1 was the variance between the common header and the individual loops.

And on Unit 2 we saw noise on one of the

individual lines. So, that kicked off a condition report that kicked off an extended condition review for both Byron units and to both Braidwood units.

Okay. So based on that extent of condition and the test that was developed for noise, we went to Braidwood Unit 1, I believe, two days later. And we took measurements. We did see some noise on two lines.

However, we had this very close correlation, between a header that was measuring flow without noise, and the individual line. So the correction factors remain in effect at Braidwood Unit 1.

Braidwood Unit 2, we did not have the correlating main header feed water flow measurement bracket on, and based on seeing noise on two of those loops, we went ahead and turned those constants, the one, we removed the correction factors from two of the four and reduced power appropriately.

PARTICIPANT: And I assume that's the same thing on Byron Unit 2. Even though you saw noise on one, you also didn't have a correlation.

MR. CUBA: That's correct, we did not have a correlating bracket on Byron Unit 2. Okay. Now, we turned off all the correction factors on Byron Unit 2.

We turned off the affected loops on Braidwood Unit 2. Braidwood Unit 2 had the other advantages. They did not have all these questions on their secondary.

Their thermal performance was right in line with where (inaudible). So, at Braidwood the unit that was running as predicted in that secondary site indication.

PARTICIPANT: So you reset the factors, all the correlation factors on, put back to one on Unit One, Byron Unit 1, Byron Unit 2, and on, you left the ultrasonic (inaudible) or the correlation factors on Braidwood Unit 1 and you set two of the loops back to one on Braidwood Unit 2.

MR. CUBA: That's correct. And then the units notifications were made in accordance with the license commission.

So, in summary, I tried to give you a little perspective on the investigations we performed. Obviously we've evaluated the issues several times, but unfortunately it was four times before we got it right.

We, and the vendor missed opportunities in our early evaluations and really in the developmental or failure mode to be focused on equipment outside the

pipe. Not the water and the noise that could be generated from water inside the pipe.

As Brad will discuss, I think we're confident we got this root cause and he'll talk about that in his slides and we are going to continue to go forward on those portions of the test plan.

And as Jim mentioned, we're going to do an independent technical review as part of this root cause analysis. If there's no questions, I'll go ahead --

MS. PETERSON: I do just have one question and I'm not sure, Brad, if you're going to get into (inaudible) about it.

In one of the, one of the evaluations that was done, the only thing I have here is Westinghouse April of 2002, (inaudible) of your condition report.

It mentions that there was a loose nut that caused a high noise level in the transducer response characteristics.

Is that the same type of noise or is it a different type?

PARTICIPANT: It's a different type of noise. Because when the thing is slow, the coupling to the transducer (inaudible). So because of that you have physically a much lower connector noise ratio.

That is not the noise that we will be talking about.

MS. PETERSON: Okay.

PARTICIPANT: That particular noise is (inaudible) and it will be (inaudible) transducer, and there will be no correlation (inaudible). It wouldn't even come into the picture.

MS. PETERSON: Okay, so that's why the data was rejected in that case, but not rejected with this noise.

PARTICIPANT: Would you expect this root cause to affect units in different ways or would you expect it to impact them in the same way in every case?

PARTICIPANT: I'll talk about that. When you go through the technical aspects of what we saw, in reality depending on certain conditions you can end up with a conservative, non-conservative or no impact result. And I'll talk about that.

Good afternoon. What I want to talk to you about is the root cause that we've found to date and our corrective actions going forward.

Then I'm going to spend sometime on, at least, our preliminary evaluation and safety implications of our historical condition.

If you'd turn to Page 22, immediately after the event of August 28th, there, we formed a root cause team at the site. And the purpose of the root cause team was obviously to determine the cause of inaccurate feed water flow measurement.

The root cause team was formed with personnel from Byron and Braidwood, along with Canteer (phonetic) engineering and technical expertise from AMEG and Westinghouse.

And we have both root cause expertise on this team and technical expertise to make sure that we have the proper mix of personnel to go at that.

The team has been working very diligently for the past three weeks on this activity. What we have at this point is what I characterize as a preliminary root cause.

But I have a high degree of confidence that we have identified the cause. The reason it's listed as preliminary because root cause still has to go through our formal management review process at the site.

And that is still in progress. We, our schedule is such to support the upcoming licensing event reports associated with that and, but I can tell you that we have a high degree of confidence that we

have found the issue.

Essentially, and what we found is, that there is an ultrasonic flow correction factor error, as you've heard. And the correction factor is caused by noise.

And this noise is impacting the time delay. Bill talked about how the AMEG bracket basically measures the time delay. It's really fairly simple, conceptually. But it integrates those individual eddy currents and comes up with an average time delay, which is then correlated to, eventually to feed water flow.

Basically, what this error was, maybe if I can say it in different words. It's a physical shift in the time delay that's determined from the AMEG.

So, in effect, the error or the bias caused a shift in that time delay, either right or left. And I'll talk about, a little bit why and why that's important.

And basically what we've seen is that the bias varies as a function of noise structure and intensity. And what I mean by that is that depending on the frequency of the noise and the magnitude of the noise, as it's factored into the cross-correlation, it

can impact the total time delay calculation, either positively or negatively or theoretically stay the same. If that makes sense.

The frequencies that we're talking about are on the order of 30 hertz or less. So we're seeing noise frequencies in the flow stream at specific points.

And I'll talk about how we came up with that determination. The bottom line to remember here is, though, with respect to this specific noise, there are no acceptance criteria or were no acceptance criteria provided originally as part of the installation to evaluate for this noise.

And we didn't really ask for it because of, I guess, a lack of knowledge on our part. And at this point, up until sort of the revelation here at the end of August, we really collectively, between us and AMEG had a lack of recognition (inaudible).

If you turn to Page 23, at the top of the page there, the presence of noise in the individual loop flow signal cause the non-linearity in the calculated (inaudible) correction factor as a function of power level.

And as I stated before, depending on the frequency and the magnitude of the noise signal, when

you go through the actual physics of the calculation, the bias can be conservative, non-conservative, or it can have no impact.

And it really depends on your individual configuration. If you had a constant driver, however, which is what we see associated with this, then it is going to impact your correction factor in a same direction with the magnitude.

And it's also integral to why we see a variance at power level. As we have gone back and looked at it, we see a difference in correction factor from power level.

In other words, from the 95, from the five percent power upgrade we start changing the correction factor. When you look at that, because of the magnitude the noise that we're seeing, it has an impact in terms of shifting that time delay from one point to another on the curve, and the feedback that we get from the system.

We determined that the noise is caused by pressure pulses in the feed water piping and the pressure pulses in the feed water piping are caused by acoustic resonance.

And we've confirmed that both analytically and by taking physical measurements in the plant, at

least on Byron Unit 2. So we have matched up, with our analytical mind, by our expert in that area in the corporation, along with the actual physical data with very sensitive pressure instrumentation that we hooked up as test.

We've validated that we do have these pressure pulses in the feed water line.

PARTICIPANT: What's the driver?

SPEAKER: We don't know what the driver is. That's part of our continued investigation. So we can confirm that the, yeah, I've got that as my next point here.

So I understand that's a question that I get all the time. I wish I could tell you that we knew what the driver was.

We have some theories. We believe that maybe pressure dropped across the (inaudible) valve. It could be check valves that we have downstream.

If you look on the schematic, the check valves that are the feed water (inaudible) check valves are right downstream of the Venturis and UFMs.

It could be associated with the feed water pumps. There are a number of factors. At this point, though, we have not been able to identify the driver. But, we have identified the noise, and we have

confirmed that the noise impacts the correction factor.

So I'll talk about corrective action going forward. The corrective action going forward is to install a bracket that is noise-free from an impact on the correction factor standpoint and to verify that status as you go forward and recalculate the (inaudible).

PARTICIPANT: Can you talk more about the (inaudible).

SPEAKER: We're talking about the AMEG bracket itself. The difference between the common header installation and the individual line.

We had an installation on the individual line as part of this project plan we've installed on all four of the Byron and Braidwood units, common header brackets.

We say brackets, that's a term that we use for the AMEG (inaudible).

PARTICIPANT: (Inaudible).

SPEAKER: If you turn to the top of Page 24, we're talking about the corrective action. So we've identified the source of the bias on the correction factor.

So what I've got listed here are

corrective actions associated with it. Obviously we removed the correction factors (inaudible), that was done on the 28th at Byron.

And what we've done, obviously, is pursue installation of the common feed water header UFM to provide for an alternate calculation, a second correction factor. And that's important for several things.

And I'll talk about its importance in our historical evaluation of power condition here in a few pages. Based on criteria provided by Westinghouse in their evaluation, we're revising our appropriate site procedures to check the UFM for noise contamination that could potentially impact the signal.

So we have this criteria that's been provided by Westinghouse. In addition, they will be evaluating, in the foreseeable future, our power installation and our calculations to ensure that we don't have this noise present whenever we would do an ultrasonic flow measurement.

And we also have validated that all four of the installations on the common headers, for the four Byron and Braidwood units, are, I say noise free.

Obviously all pipes have noise, that's something you can't get rid of. But they're noise

free to the extent of not adversely impacting the calculation (inaudible).

PARTICIPANT: They have a common header and you put a UFM on it that measures total flow.

SPEAKER: Right.

PARTICIPANT: You have UFMs on each individual line and you total that to get, add all to get total flow.

SPEAKER: Correct.

PARTICIPANT: So to get total flow you've got to add four UFMs, you've got to do that work. And you said that's several days. Now you're comparing, you say well I'm not going to check that with the one common header.

Why didn't just the industry start with this, these common header if that gets you total flow?

SPEAKER: Well, I can answer part of that. I'm just, based on my review, some like to see the view of this technology, as you are aware, (inaudible).

And they're using it in a constant monitoring mode, where there Venturis are basically out of the system. They're feedback to their precision calemetric is directly from AMEG, this type of system.

And so they have done that and hooked it up on the four individual feed water lines. In theory, you get better uncertainty now when you have four, four independent lines hooked up as opposed to one and you do the statistical analysis and you divide by the square root of the total number of the loops and you end up with an overall better uncertainty.

So that's the thought process. However, you can qualify the system, the installation, on a common header. And as long as the instrument, and certain analysis that you do, fits within the overall bounds of your safety analysis, which is part of the validation process for installing these and it's acceptable to utilize.

PARTICIPANT: So the way you did it, do you factor in (inaudible) to flow line?

SPEAKER: That's correct.

PARTICIPANT: I'd just like to go back for a moment. Again, on Unit 1, Byron Unit 1, you saw noise on all four lines?

SPEAKER: That's correct.

PARTICIPANT: But you did not see noise on the common header?

SPEAKER: That's correct. Noise that impacts the, as I stated, and I want to be clear, all

pipes that have flow through have noise.

The noise that we're talking about is the specific contamination that's impacting this signal or a low frequency of a magnitude of such that it's impacting the instrumentation.

PARTICIPANT: So what you're saying, then, that the pressure pulses occurred, then obviously, sometime or someplace between the common header and the -- or the individual by itself?

SPEAKER: The pressure pulses are present in the individual feed water lines. We've done acoustic monitoring on the, we've done acoustic modeling on the main feed water header and we see resonances from that particular modeling similar to what was on the individual feed water line.

At this point, we've not taken the pressure data on the main feed water header. What we do have is an evaluation of the traces from that common header by AMEG using their tool.

They have a tool, they call it diagnose, that evaluates and has determined that the signals that they were getting from those common header installations are clear of noise that would impact that correction factor.

In addition, we did perform a test this

past weekend on Byron Unit 2. We had our periodic turbine valve/governor valve surveillance which causes us to down power from 100 percent down to approximately 80 percent.

And throughout that process we took pressure data and we also monitored the AMEG correction on the, on the common header.

And from that we would determine very close correlation between the Venturis and the common header installation, which are the behavior that we did not see previously with respect to the individual feed water line installation.

So we've done some additional things to help us validate and have a high degree of confidence in the installation on the common header. Did I answer your question, Marie?

PARTICIPANT: I think so.

PARTICIPANT: You talked about the vendor having a tool that detects the noise.

SPEAKER: I'm sorry?

PARTICIPANT: You talked about the vendor having a tool to detect the noise?

SPEAKER: Correct.

PARTICIPANT: How long has that tool been around?

PARTICIPANT: We have the tool to use, but we don't use (inaudible). And I believe what happened is (inaudible).

(Inaudible).

PARTICIPANT: And how long have you had the tool?

PARTICIPANT: (Inaudible).

PARTICIPANT: So, back in 1999. It's easy to sit here and say, why didn't you use it back then? But it was available if somebody would have thought --

PARTICIPANT: (Inaudible).

SPEAKER: Based on the information that AMEG has provided, obviously AMEG supports the installation. Their technicians are here working with our personnel.

But they really, really oversee and perform the installation of these brackets and do the calibration and testing.

The information they provide is they believe that the test may have been run on one loop and it appears that that loop may have been one of the ones that is noise free.

And given no indication of a concern going forward. Now, as I stated before, we don't have an acceptance criteria for that, and so from our

standpoint, I'm not defending it.

We were really ignorant of this piece of it.

PARTICIPANT: Another way to look at it though, there is a tool out there, somebody though enough to use it at least once.

And if (inaudible).

SPEAKER: That's a great point, see, but all electronic installations of a similar nature like this have signal noise as an issue.

PARTICIPANT: Right. Well, that's another point.

PARTICIPANT: Let me just understand that. When you're revising, in the process of revising your procedures to check for the noise?

SPEAKER: That's correct. So, in other words --

PARTICIPANT: Are you sending the information to --

SPEAKER: That's correct.

PARTICIPANT: And so every nine months or when the power decreases at your Venturis (inaudible), during that time is when you're sending the information?

SPEAKER: Correct. The criteria, the

procedures have specific criteria as you stated before where we are required to recalculate friction factor.

Whether its a deep down power a reactor trip, other changes. In the particular case going forward, until AMEG comes up with a tool that we could utilize ourselves, we will have AMEG evaluate the affectibility of our traces for calculation and determination (inaudible).

And that will be included in the procedures.

PARTICIPANT: Shortly after this was discovered, at the end of August, as the Site Vice President, I was very interested in the question of why in the Spring of 2002, when we did a testing between the common header and the four loops, did we not discover that?

And now in August of 2003, we did? I chartered a group to go figure out that question. So, I would like the group to just walk through, and there is some basis of how we got the use this diagnose tool this time around.

So, Bill or Ormondo(phonetic), how did we get to use the diagnose this time when we didn't use it last time? I think that's an important point.

PARTICIPANT: (Inaudible). First of all,

we redo our measurement. We want to make sure that they are not affected by (inaudible).

(Inaudible). So what happened in the case of the (inaudible). We look at the individual photos and we find that they are (inaudible) significantly compared to our expectation (inaudible).

So during the time we (inaudible), and we have one of our engineers actually constantly look at (inaudible) to see (inaudible) factor, we look at the (inaudible).

And one of the things they noticed is that the close correlation (inaudible). So combining the information of the (inaudible) because that's the only component that we can look at (inaudible).

We look at the (inaudible) and everything else. But we (inaudible). So that (inaudible).

PARTICIPANT: I know you are going to go into NRR next week and talk in detail about (inaudible). I can't help myself but ask the question. Is this the first time that you've determined that noise affects the (inaudible)?

PARTICIPANT: (Inaudible), this is the first time that we have. We have to check the noise before, but usually there are (inaudible) from the frequency that we are looking.

But looking at a (inaudible). (Inaudible). And sometimes we saw a noise, but it was a very sharp (inaudible).

PARTICIPANT: What are the possible differences in the units that would cause it to affect one unit more than it would affect another unit.

SPEAKER: We do have some differences, and we're still evaluating those. The root cause team has evaluated. We looked at pipe lengths. We've looked at installation.

We do have different check valve designs. The plant and the units are more similar than they are different, I guess. We are continuing to evaluate that, but at this point, as I stated previously, we have not been able to firmly identify what the driver is. We just have several theories.

PARTICIPANT: Is there something unique about Byron and Braidwood that would cause it to affect them versus any other plants in the industry?

SPEAKER: That's a question that I think AMEG and others will have to answer. I feel, as I stated before, an obligation to continue to pursue the driver as to what's causing the frequency problem that we're seeing.

And with respect to whether this impacts

other plants or not, theoretically, from my standpoint, I believe it's possible.

Whether it's fair or not, that's something that AMEG is going to have to answer.

PARTICIPANT: We, at AMEG, (inaudible) are reviewing all our installations just to make sure that we didn't have similar problems.

We find that (inaudible). (Inaudible).

PARTICIPANT: Saying that you found this at Braidwood and Byron, are there any other Exelon sites that use the UFM. So they are installed but they are not currently being used.

I guess what my bottom line question is, are you sending other, from other sites, are you sending the information to Westinghouse to check for this noise also?

PARTICIPANT: Ann Marie, we have because of the unique configurations, particularly at Dresden and Clinton, because of the status there and their power upgrade, at this point in time, although we have the UFMs installed they have, they're not specifically critical because we're generator-limited on those plants.

And at LaSalle(phonetic), when we used them, we found that there was no recovery, so we have

continued to use the flow Venturi at that station.

So, we'd need to, as we complete the root cause, go back and assess the impact for going forward on those units.

However, we don't have an immediate concern on any of those units today, because of the way they're operating.

But at the end of the day, we will have to close the loop (inaudible), but they're not in the immediate part of the root cause.

PARTICIPANT: Okay.

SPEAKER: Let me go back to 24 there, in the middle of the page. Let me kind of summarize here with respect to this.

Even though we don't know the driver, we have identified the cause of the bias in the correction factor. And we can reliably detect that noise when it exists.

And therefore, we believe that we, I believe we can put in corrective actions to ensure that when we calculate correction factors in the future, that they're accurate and consistent based on that particular piece.

But, going forward, prior to us going back to this technology. In other words, reinstituting the

system, as Jim stated before, we're going to commission an independent technical review, and this is separate from the decision making piece now.

But the technical review is going to review the root cause and our corrective action, along with all of the other physical aspects of the installation.

So the plan there is to really give a hard, independent technical evaluation of our installation along with assuring that the corrective action, the root cause and corrective action (inaudible).

And then Jim, Jim also talked about the additional team that's been chartered to comprehensively evaluate our decision making on a broader level and over the entire life span of the issue.

So, this team will provide the results of their work to the (inaudible) Officer, and obviously we'll share those findings with you at the appropriate date.

PARTICIPANT: But also part of a decision going forward to do that, there will be significant discussion at the corporate office up to an including (inaudible).

We've put that hard stuff in place. Again, I don't mean to do a root cause evaluation (inaudible). We talked a lot about the noise (inaudible).

What other sorts of root causes or (inaudible) causes have you looked at and haven't dispositioned yet? And, I guess I'm particularly interested I guess in the mechanical side of it.

By that is more installation than these accuracies. I heard you've got to install it within a thousandth of an inch.

That can go lots of different ways when you're installing the (inaudible) transducers on a piece of pipe. What other root causes of the (inaudible) are you looking at?

SPEAKER: That's a very good question, Steve. Obviously over the past three years, we've evaluated these installations intensively. And a lot of the things that you're referring to have been evaluated.

As part of this root cause we actually went back and revisited all of those things along with all of the other potentials.

We looked at cable affects, software, hardware, obviously the pipe vibrations. You know,

inside diameters of pipe, the pipe layout.

Other types of issues. So those things were exhaustively evaluated as part of this root cause. So we just didn't stumble on noise and say, hey, we've got it and that's it.

Those things are all part of the standard process that we applied in doing the root cause evaluation for this or any other issue.

And that's why, as part of a team, when we set that up, we had individuals with specific root cause training and expertise as part of that team.

PARTICIPANT: Have you concluded that pipe thickness has no particular affect?

SPEAKER: In this particular case, we have concluded that pipe thickness has no particular affect on this particular issue.

So, if we could, I'd like to move on to Page 26, and talk a little bit about safety implications.

The installation of the common header is important to us, and I'll explain that in a minute. From a historical perspective, we determined that Byron Unit 1's over power was limited to 101.6 percent.

And the basis for that is the difference

between our historical maximum correction factor and the current correction factor that we get from the common header.

So, in other words, there's about a 1.6 percent difference in feed water mass flow when you finalize that calculation. And we have a high degree of confidence that that (inaudible) historical over power condition for Byron Unit 1.

PARTICIPANT: Are you saying that's the highest you went to?

SPEAKER: That's correct.

PARTICIPANT: Okay.

SPEAKER: Using the same --

PARTICIPANT: If I remember correctly, there have been times when there were no moderations, you've exceeded 100 percent power.

SPEAKER: That's correct. And if --

PARTICIPANT: So if you add those instances, those excursions, on to this. Have you done that and see what you get?

SPEAKER: As part of the, as part of the final review to generate the Licensee Event Report we will evaluate that.

I believe, based on our historical review, that there's nothing of significance in there that

would fall within anything too far outside of that.

But we'll make sure that that gets incorporated in our Licensee Report.

PARTICIPANT: (inaudible).

SPEAKER: No. Not to my knowledge.

PARTICIPANT: Is the 1.6 percent the delta between the Venturi flow and what you got in megawatts thermal? Between where you are now and where you were when you (inaudible) ultrasonic?

Or is that, is the 1.6 what you believe would be inaccuracy (inaudible)?

SPEAKER: The 1.6 is the, what we believe to be the inaccuracy or the bias in the correction factor, due to the signal noise.

PARTICIPANT: Okay, so you, but you, so you think that if it was working correctly, you would have gained some megawatt (inaudible)?

SPEAKER: Correct. We would have gained megawatts, but not many megawatts obviously, where we were at. We had a correction factor on the order of, I'm giving an approximate value now, on the order of two and a half percent.

So the, on Unit 1, now I'm talking about. And if you take the data today, it's on the order of one percent. So there's about a one and a half

percent delta between the individual feed water line contaminated signal calculation and the common header installation with (inaudible).

When we used the same analysis for Byron Unit 2, we come up with a determination of the over power limit at 100.4 percent. And for Braidwood Unit 2 on the same basis is limited to 100.3 percent.

Now as part of this investigation, we have commissioned our corporate nuclear fuel organization along with Westinghouse to re-evaluate our (inaudible). And that review is currently in progress.

And those evaluations are being performed with conservative assumptions that (inaudible). And at least at this point the preliminary evaluation, the results indicate that the applicable safety analysis accepted criteria were met.

We expect that work to be completed here in the near term and will be included as part of the (inaudible) report and (inaudible).

PARTICIPANT: Jim, just to illustrate the evaluations that were being performed, two and a half percent or approximate two and a half percent that Brad is talking about from the individual lines back

to the Venturis, we're including that in the analysis plus additional conservatisms for inaccuracies, etcetera.

So we wanted to make sure that from a safety analysis standpoint that we were completely bound in limited, even though there's the confidence that the over power was actually limited to 101.6. Follow me there.

PARTICIPANT: You're saying you're going to take the worst case, two and a half percent, and say that you were still within your action analysis?

PARTICIPANT: Yes. Yes. Actually, it's the 102.5 plus three uncertainty associated with Venturis --

PARTICIPANT: Right.

PARTICIPANT: -- associated with the (inaudible).

PARTICIPANT: (inaudible).

PARTICIPANT: Five percent.

PARTICIPANT: When you permitted that, did you have to redo any of these analyses or was your original action analysis up to 105 percent (inaudible).

SPEAKER: The entire gamut of safety analysis were re-evaluated for a power upgrade.

PARTICIPANT: Up to 105 percent.

SPEAKER: One hundred and five percent of the previous condition, that's correct.

PARTICIPANT: Right.

SPEAKER: Well, uncertainty, what I'm referring to here is Westinghouse is doing a check and evaluating our maximum historical condition, plugging that back into the code and re-evaluating that particular impact to determine what results we get (inaudible) to determine whether we would need the applicable safety analysis (inaudible).

So we've talked a little bit about future plans and actions but basically a lot of this is reiteration of previous stuff, but I'll say it again just so it's clear.

On Page 28, we have this project plan in progress, installed common feed water header (inaudible) on all four Byron and Braidwood units.

We discussed this in our August, or, yeah, August transmittal to the NRC that's laid out to our project plan.

We had done testing on those common header UFMs and they are free of noise contamination that could adversely affect the signal.

I want to make sure that, again I say,

they all five had noise. But with respect to this specific noise that's causing the issue, we have confirmed that the, that currently those common headers are free of that particular noise.

And then we're also revising our procedures to ensure that we evaluate for this particular phenomenon as we go forward to ensure that we recalculate correction factors, that they are accurate and consistent with what we expect.

This overall project is scheduled for completion by the Byron and Braidwood units in the September/October time frame.

We will continue that project plan. Obviously, what we communicated in our previous transmittal, had us going out into 2004, with specific action.

Given the events of August, we have obviously accelerated some actions and we are revisiting the types of actions and additional things that we're going to do.

But our intent is to continue that project plan to evaluate this in addition to continue to investigate sort of the source of the noise of the driver, because I feel, you know, very strongly about trying to continue to attempt to identify that piece

of it.

As I stated previously, we're going to perform an independent technical review of the root cause and corrective actions and then we've got this broad review of (inaudible) initiated, and those results will be shared with the NRC.

And before we make any decisions to restore the AMEG system, we'll make sure that we have all these pieces in place.

PARTICIPANT: Do I understand, when you said the comparison test between the common headers for (inaudible), you did not see the noise. The noise, you don't know if the noise was there?

Did you see it? It's interesting to know if the noise, if it's only at the higher power and, or does it start only after the (inaudible)?

SPEAKER: We did, I talked about the test that we ran as a test, the data that we took during our scheduled down time (inaudible) this past weekend for the governor valve, turbine valve/governor valve surveillance.

We did also take pressure data at that lower condition, and we still saw the noise contamination by the pressure pulses, is what I'd say, in those individual feed water lines.

The magnitude was different and the frequency shifted somewhat in certain circumstances of some of the resonancy.

So we still saw the noise out of the pressure pulses in those lines, but at a different level and magnitude of frequency.

PARTICIPANT: Any time you do a review of what happens (inaudible) the root cause (inaudible). (Inaudible) low frequency pressure pulses at another site.

It had EPUs, it had (inaudible) low pressure, low frequency pressure pulses. I just wondered, in the big scheme of things, (inaudible) low frequency pressure pulses (inaudible).

PARTICIPANT: Regarding the last bullet in the decision making process review. When do you anticipate getting to the point where you'll be ready to share that with the NRC?

PARTICIPANT: It's probably premature for me to speculate, but I think that we will be done, certainly with the data gathering and the first path analysis I expect in about the order of a month.

But obviously the point at which we say we're satisfied with the results is going to be a function of what we're finding. So (inaudible).

PARTICIPANT: As part of your analysis, technical review, do you plan on any additional testing to be done?

SPEAKER: We are planning on taking additional data, going forward, on, for Byron Unit 2. And we're also pursuing that for Braidwood, to again, as I have stated several times now, with the intent to figure out what the driver is and also to identify what the differences between the four units may be.

PARTICIPANT: Getting back to your questions, within the next two weeks we'll be prepared to establish a date with you when we can come back here and talk about.

I think we'll, we should be able to get enough clarity on the endpoint, I think, we owe you that. So within the next two weeks we'll get that date set with you all.

PARTICIPANT: Thank you.

SPEAKER: If there are no other questions, for Brad, I'll take us to Page 30. As you've heard Brad explain, we believe that we've identified the root cause to be an error in the ultrasonic flow measurement correction factor that was caused by signal noise.

And that the signal noise was caused by

pressure pulses in the feed water pipe. It was not an easily identified, it took our multi-disciplined root cause team, with thermal hydraulics, system performance, INC and AMEG experts to pull that level of detail together.

And in order to solidify our understanding of this root cause we will, as we've said, conduct an independent technical evaluation of the root cause conclusions using outside resources.

Our preliminary evaluation determined the safety significance of the over power to be low and bounded by the relevant safety analyses. However, that conclusion is not intended to minimize the significance that we're assigning to this issue.

It continues to have the attention of our entire organization, up to and including Mr. Scolds(phonetic) and Mr. Kingsley(phonetic).

Our plans for future implementation of the ultrasonic flow meter will be determined after the performance of that independent technical review of the root cause.

The results will be discussed with our senior management to determine the next steps. And we will communicate those plans to you when they are established.

As I stated earlier, although we put a significant effort into trying to determine the cause of this problem over the last four year period, we are disappointed that we didn't get to the answer much sooner.

We've all discussed the team that was chartered by Jack Scolds to conduct the broader evaluation and decision making, and from that team we expect to better the missed opportunities and the lessons learned, and to share those with you as we just agreed.

Pending other questions or comments, this ends our presentation.

PARTICIPANT: I have a question. It's going to take some time, and I understand it takes some time to thoroughly examine the decision making.

Are there any lessons that you've learned, anything that you've internalized at this point, compensatory measures, if you will, however you want to call or consider them.

Anything that's impacting current decision making that you've taken from this so far?

SPEAKER: We've gone through other situations that we have at our operating power plants and have not yet tumbled on any that we, based on

lessons learned out of this, we feel like we to immediately go backwards.

I will, where it does come up more prevalently is pending decisions we have. I'll give you a simple example. One of the projects that we're evaluating to reduce (inaudible) at (inaudible) is ultrasonic fuel cleaning.

So we're taking some of the lessons learned that, although we haven't stepped our way all the way through the process, it is obvious how we are treating technology that perhaps we are not routinely conversant in.

Flow measurement using ultrasonics is one. Effective ultrasonics on a fuel pin would be another. So we are taking these lessons learned and applying them toward actions that are pending in the short term to the best expense that we're able to.

It's going to be an ongoing process. Because everyday that we learn more about this, causes us to go back and revisit either past decisions or decisions that we'll may be go through in the near term, prior to completion of the other initiative.

PARTICIPANT: That fuel cleaning process, is that different than the one that was used Hungary?

SPEAKER: It's, it is similar in concept to that, and used at Calloway(phonetic) in south Texas and such. But its application on the type of fuel, specifically the boiler fuel, will be a first of a kind at (inaudible).

PARTICIPANT: So you're also taking the lessons learned from other places as well?

SPEAKER: Oh yeah, yes.

PARTICIPANT: Are there other questions? Let me ask Bill or George, on the phone, any questions from you?

PARTICIPANT: This is George, I have one question. When Exelon reported that they thought that Byron Unit 1 was over power, and it was a combination of the contamination of the signals from the individual feed water instruments as well as the fact that the, some of the parts did not equal the whole when they compared it to the common feed water header.

The, my understanding is that there had been some continuous monitoring of the data of the individual feed water legs for a while, prior to adding the UFM on the common header.

And my question is were there indications in those signals, at that time, that may have given the clue that there was something irregular in the

feed water measurements with the UFM?

SPEAKER: They have taken several months of data, one significant note, it's (inaudible) power is we have not seen any change in the correction factor.

So one thing we were looking for was this change, and we had not seen it. Now an important piece of this plan was to get this correction factor data on the individual loop as we begin coast down, which we now have.

Now I have not heard whether or not we've seen changes due to the coast down we're currently experiencing. But correction factors have been steady as a result of this data being taken for a long period of time.

PARTICIPANT: Okay, thank you. I don't have any other questions.

PARTICIPANT: Okay, Bill? Okay. Any other questions from the NRC? A couple of logistic things before I turn it over to Jim for the closing.

That presumption that there is no proprietary information in what you've given us and you've prepared it for a public meeting, so do you want to verify that? Thank you.

And for members of the public, we will be

available after Jim closes this portion of the meeting, for questions and answers, and we do have the public feedback forms available.

PARTICIPANT: The NRC will be available.

PARTICIPANT: And with that, Jim.

SPEAKER: Well, we appreciate you coming over. I certainly appreciate you being open and honest because we asked a pointed and hard questions and you guys didn't get, you answered the question the way it occurred and I appreciate that.

I hope the next session we have, which is a little more difficult discussion, can be the same way. Because that's what we're looking for. Just to get to the bottom of this so we can move forward.

So I do appreciate the information we gained today, and I know you'll be going to Headquarters and they'll probably get into a lot more technical details (inaudible).

You indicated that you were disappointed in the time it took to figure this out, obviously. Echo that. There was a lot of discussions that have been going on over the past year and a half within this region and with Headquarters, it's gotten all the way to the highest levels in the Agency.

And questions on what to do, how to get

where we need to get to and concern about, you know, we typically want to make sure that we understand what we're doing and that we have a good foundation for decisions that we make.

And as you know, it took you a while to get to this root cause. But we were, saying we don't have some of the same expertise you have, it was difficult for us to figure out how to react.

And in fact, we rely on you as the Licensees to, because you do have that expertise to make the correct decisions.

And in this case, I think, I won't preempt your review, but we're not conservative. There's a couple of things, I asked the question about the statement, only to try to bring out a point.

And that is something that we've talked about on several other issues and, with Exelon plants and that is that we look to see, for the approach to be you, it's your plant, it's your resource.

We look to see that you are looking for, is this right, and then justifying why, as opposed to justifying why you're right before determining whether you are or not.

And I'm not, and I'll wait and see what you have to say, but that's the way it appears to us

now that you wanted this to be correctly and that's what you ended up doing is justifying it.

And, in fact, I asked the other question about your practice of taking a non-conservative decision, even though you weren't exactly sure it was right.

You had good, you know, it was, you felt it was reasonably okay because everything you tried did not indicate it was a problem.

But maybe to ask the question more pointedly, going forward would your expectation be that you would take the normal practice review, take the conservative approach and then decide whether it's a problem or not before you move forward.

That's a fair question. Is that --

PARTICIPANT: Yeah, I think certainly our expectation of ourselves is, given all the information (inaudible) analyzing and a responsible job of gathering information that we won't proceed, whatever form perceived may take, in a direction such as raising power or extending runs, those types of things, without a thorough understanding of what the issues are and a fundamental belief that we are correct.

With that said, I do understand the nature

of your questions and certainly, as we've gone through this, some of the documentation appears that we don't (inaudible), like the impression it leaves is we don't feel good about this, but we can't find anything wrong.

And at what point should that turn to a positive action and drop to a position where we can distinctly say, we may not be where we're going to end up, but we're at a position today that we're very comfortable.

PARTICIPANT: As you know, we just do a sampling and we get, we do a smart sample, but we do a sampling of what's going on.

And we do have gut feel on things, but in the end, we rely on you guys to make the right decisions. And to be honest with you, Exelon has done a very good job in the past few years of making the right decisions.

Just a few examples we've had an opportunity to talk about here, and that's what the industry obviously is looking for and certainly what the Agency is looking for.

We're struggling through a situation with another facility in this region that went completely the other direction and we're looking at our processes

to see what we can do to analyze things that are difficult to understand.

And we won't need to do that if we can trust you to always do the right thing. People make mistakes, but if you're always thinking to do the right thing, then it's not necessary for us to be sitting back saying, all right, are we being, did we get accurate information or are they trying to pull our leg or what?

Now, we're all skeptics on this side of the table, that's how we got to doing what we're doing, but, so we'll continue to ask those questions.

But, in the end, it doesn't do any good for any of us to take the approach where, let's see what we can get by with. We may not always get it, but we get there at some point.

And by that time, sometimes it's too late, as evidenced by the plant out east. In any case, I did appreciate this. I thought you guys were very open and honest with the information that you've provided, and I look forward to the next meeting so we can discuss that portion of it.

Because that's probably the part that concerns us the most. One last thing. I know this wasn't safety significant, but you did get EPU, which

you got an extended power uprate because you had margin in your plant to be able to do that.

And then on top of that we were concerned, you know, you were doing something that was beyond that which should have given it a little bit more of a significance.

Even though I understand it's not really safety significant, it was at the bad time to be doing something that got you above your 100 percent. But thank you very much for coming and we look forward to the next meeting.

PARTICIPANT: We'll take just a couple of minutes to let folks gather their things, if they're choosing to leave at this point, and then we'll open it up for the NRC to take questions.

We'll start first here in the room, if there's anyone that would like comments or questions and then we'll go to the phone. So just give us a couple of moments, please.

(Asides away from microphone.)

PARTICIPANT: Okay, for those that are still with us, we'll open it up for any questions for the NRC? Anyone on the phone?

PARTICIPANT: Yes, Greg (inaudible) from NRC, but I have no questions.

PARTICIPANT: Okay, thank you very much. Anyone else? Okay. Sir, anything? Okay, thank you. That concludes it then, we have no public questions. Thank you.

(Whereupon, the foregoing matter was concluded.)

CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Public Meeting on FOIA/PA-2003-0444

Docket Number: n/a

Location: n/a

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings as recorded on tape(s) provided by the NRC.

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