BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 100437-EI

In the Matter of:

EXAMINATION OF THE OUTAGE AND REPLACEMENT FUEL/POWER COSTS ASSOCIATED WITH THE CR3 STEAM GENERATOR REPLACEMENT PROJECT, BY PROGRESS ENERGY FLORIDA, INC.
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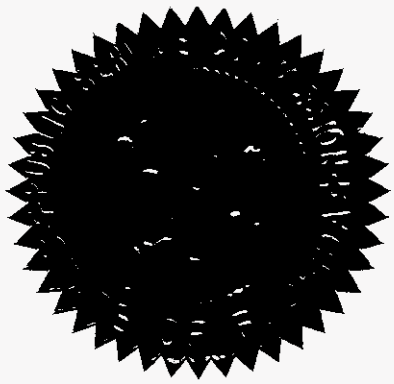


PROCEEDINGS:	STATUS CONFERENCE
COMMISSIONER PARTICIPATING:	COMMISSIONER EDUARDO E. BALBIS Prehearing Officer
DATE:	Monday, January 24, 2011
TIME:	Commenced at 1:30 p.m. Concluded at 2:28 p.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Official FPSC Reporter (850) 413-6732

APPEARANCES:

JOHN T. BURNETT, ESQUIRE, Progress Energy Service Company, LLC, Post Office Box 14042, St. Petersburg, Florida 33733-4042, appearing on behalf of Progress Energy Florida, Inc.

JAMES W. BREW, ESQUIRE and ALVIN F. TAYLOR, ESQUIRE, c/o Brickfield Law Firm, 1025 Thomas Jefferson Street, NW, Eighth Floor, West Tower, Washington D.C., 20007 appearing on behalf of White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate.

VICKI GORDON KAUFMAN, ESQUIRE, Keefe, Anchors, Gordon & Moyle, P.A., 118 North Gadsden Street, Tallahassee, Florida 32301, appearing on behalf of Florida Industrial Power Users Group.

CHARLES REHWINKEL, ESQUIRE, Office of Public Counsel, c/o The Florida Legislature, 111 W. Madison St., Room 812, Tallahassee, Florida 32399-1400, appearing on behalf of the Citizens of Florida.

APPEARANCES (continued):

KEINO YOUNG, ESQUIRE, FPSC General Counsel's Office, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, appearing on behalf of the Florida Public Service Commission Staff.

MARY ANNE HELTON, Deputy General Counsel, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, Advisor to the Florida Public Service Commission.

P R O C E E D I N G S

COMMISSIONER BALBIS: Good afternoon. I'd like to call this status conference to order.

Staff, could you please read the notice.

MR. YOUNG: Good afternoon.

By notice issued January 19th, 2011, this time and place was set for a status conference in Docket Number 100437-EI, in re, the examination of the outage and replacement fuel/power costs associated with the CR-3 steam generator replacement project, by Progress Energy Florida, Inc. The purpose of the status conference is set out in the notice.

COMMISSIONER BALBIS: Thank you. And now we can take appearances. We'll start with Progress Energy of Florida, and just go on down the line.

MR. BURNETT: Thank you, sir.

Good afternoon. John Burnett on behalf of Progress Energy Florida. To my left I have Jon Franke, which is the Vice-President of our Crystal River 3 facility, and our General Counsel, Alex Glenn.

MS. KAUFMAN: Good afternoon, Commissioner.

Vicki Gordon Kaufman. I'm with the law firm of Keefe Anchors Gordon and Moyle, and I'm here on behalf of the Florida Industrial Power Users Group.

MR. REHWINKEL: Good afternoon, Commissioner.

My name is Charles Rehwinkel with the Office of Public Counsel.

COMMISSIONER BALBIS: Thank you.

I understand we have Mr. Brew and Mr. Taylor via teleconference. Just checking to see if they are on board.

MR. BREW: Yes. James Brew and Alvin F. Taylor for White Springs Agricultural Chemicals, and I appreciate the opportunity to attend remotely.

MR. YOUNG: Commissioner, Keino Young, legal staff.

MS. HELTON: And Mary Anne Helton, Advisor to the Commission.

COMMISSIONER BALBIS: Thank you.

Just a couple of comments about procedural matters. We'll go on to Section 4 of the script. And the primary purpose of this status conference is basically to allow Progress Energy of Florida to provide a detailed schedule, if you will, outlining the steps required and appropriate milestones in order to bring the Crystal River 3 Unit back into safe service.

There have been some questions about the schedule of that, so what I want to do is call everyone together, give you the opportunity to present information detailing those steps that need to be taken,

and then allow the other parties to ask questions, and then move forward and start discussing the schedule of the hearing as we move forward.

Again, from a procedural standpoint, we will allow a presentation from Progress Energy of Florida. One thing I do want to note is I want this to be a looking forward status conference. I don't want to discuss anything that happened in the past, how we got here. I think that will be handled in a future matter. But now let's just look at what steps need to happen in moving forward.

And I understand you do have a lengthy presentation. I will request that if there are points that we can start in this presentation that really from a time standpoint is going forward, that would be appreciated. But, of course, if there's other information you would like to present, I'll allow you to do that at this time.

MR. REHWINKEL: Commissioner Balbis, may I say something before we proceed with the presentation by Progress?

COMMISSIONER BALBIS: Sure.

MR. REHWINKEL: From the Public Counsel's standpoint, we appreciate the scheduling of this matter, and we fully appreciate Progress Energy bringing their

station vice-president for Crystal River to make a presentation. I'm on the record as being someone who thinks quite highly of Mr. Franke, and I think he is a good witness and does an excellent job.

My statement that I'm about to make to you has nothing to do with his testimony here or in any other matter, but we would just like to state for the record that what you're going to hear is not evidence in this matter, and it is purely for the purpose of making scheduling decisions. And I think that your remarks have already made that point, as well, but we just wanted to state that for the record, that we have no objections to the statements and the testimony that -- I shouldn't say testimony -- that Mr. Franke is going give, but we just want to remind folks, and state for the record that this is purely for scheduling purposes, and not in any way bearing on the evidence that will be taken from here forward.

COMMISSIONER BALBIS: Okay. Thank you.

And, again, I think everyone is clear that is the purpose of this proceeding.

MS. KAUFMAN: Commissioner, if I might add onto that, and a comment that you made earlier about forward-looking. I have only just received this presentation, and was helpfully pointed to the

scheduling part by Mr. Burnett. It looks like a lot of the information prior to that does deal with what has already happened in the past. And I know that you asked for a status update, and I took that to mean going forward, as well. So we would echo Public Counsel's comments, and suggest that if you think well of it that the information to be discussed today would be where are we now and what's going to happen in the future. Because those other issues are going to, as you said, be looked at in the hearing, whenever it is that we have it. Thank you.

COMMISSIONER BALBIS: Thank you. Any other questions from parties and Staff?

MR. BURNETT: Commissioner Balbis?

Thank you, sir. I appreciate the comments from counsel. And to that end, it may be helpful just to point you, sir, to Page 32 of the PowerPoint presentation, at this time, just as a preliminary matter. We fully agree with the comments from counsel. I mean, we don't intend Mr. Franke to testify. And anything that is in this presentation that is historical, it's just to provide a frame of reference to what we are doing going forward. Some of the stuff you have to build a foundation on.

Sir, Page 32, I think, answers the two

questions that you charged us with in your order. What do we need at a high level to do to get the unit back on, and what is the time estimate for that. If it is your pleasure, sir, we can stay on that slide the entire time and never leave it, but we are prepared to talk in any level of detail that you or the parties or staff would like to see.

COMMISSIONER BALBIS: Well, thank you. And I think, just for my own personal benefit, I would like a little bit of additional information than just that slide. Again, not to get into the weeds too much, but to show these are the specific steps that need to be taken. I'm sure that your professional staff have a very detailed schedule of the specific steps that need to be taken. We don't need get to that level, but I think something in addition to Slide 32. I think that would be a good summary slide, which is enough of a foundation, again, going forward, and I agree with the other parties' comments that we don't -- we are not building a record here, we're just building a foundation to discuss the schedule of events moving forward, and then we can go into the hearing issues.

MR. BURNETT: Yes, sir.

And if you guys would let us know, too much, too little, a little more, a little less, we will be

happy to interactive with the process, sir, to your needs. Thank you.

COMMISSIONER BALBIS: Okay. Any other questions from the parties or staff? Okay. With that, we will turn it over to Progress Energy for their presentation.

MR. FRANKE: Thank you. And I want to thank the Commission and the interested parties in an opportunity to talk about where we are with Crystal River 3. There is a lot of material in the presentation, and the reason -- and I encourage anyone that thinks I'm going too far into too much detail to step in.

Part of the problem with talking about just going forward is I can say, for example, over the next many days our primary activity at the plant is retensioning the building, and I can say that. Unfortunately, it doesn't mean much. The letter we received asked for some detail, so I'm providing some background information to provide what that means and what it takes to do that to provide that detail requested. It's purely for the purposes of meeting the will of the Commission and being able to inform the parties.

So with that being said, what we'd like to

cover -- thank you. This is not working.

A little bit of background information so that when we talk about that forward schedule it's a little clearer what that means. Give a schedule summary, a status of the remaining repair activities, and I think it is important in talking about the going-forward aspects of our schedule to discuss some uncertainties in the schedule and what items are out there that could potentially affect both the duration as well as the scope of our work going forward.

Thank you. All right, it's working now. Thank you.

A little on the background. I'll go very quickly through this. The issue began with our steam generator replacement project. That occurred last fall. No need to go into any detail here, but we replaced the steam generators. As part of that replacement, it required opening up the containment building, and that's what we are talking about repairing at the facility right now.

If you look at a simplified drawing of the building, this shows the steam generators inside our primary containment building. There are three barriers. This is the third barrier to radioactive release to the public. The containment building itself, the steel

liner itself is the barrier. The concrete provides the strength of the building to hold the liner in place in the event of any high energy transient that would occur inside the buildings. It's essentially a water pipe rupture that would release steam into the building.

The building itself, if you look at this cutaway, you see the circles to the left and right, those are tendons inside the concrete structure. So when you make this building, you place tendon sleeves inside the concrete, you pour the concrete, when it cures, you put tendons inside those steel conduits, and you tighten the building to make it compressed in its normal state under operations. That's important because I'm going to get back to that. That's actually the evolution we are undergoing right now of compressing the building using those tendons.

Let me explain to you what they are and how they work. It provides background to the activities that we have ongoing right now and for the next several weeks. The building itself, this is a picture of the side of the building, and you see steel caps along the edge of a buttress. Where the concrete comes out, we call that a buttress. Those steel caps beneath them are the end of tendons. There are 144 vertical tendons in the building, 282 hoop tendons which wrap around the

building, and then there's 123 tendons that are involved with the dome structure. Okay.

The next slide explains how these tendons work. If you exaggerate the buttresses coming away from the wall, and as I click it, you'll see the tendons start wrapping around the building. Each tendon goes a third of the way around the building, so it takes three tendons to wrap around once. And then in order to get the building even, each loop has a set of two loops around the building, making six total a complete loop around the building. This is how you get a nice even squeeze on the building when you pull the tendons tight.

Over to the right you can see at that tendons are actually meant to be closer together where there is a pair of two tendons that make this loop of essentially six tendons total for a complete loop. And then there is multiple loops across the building, if that makes sense.

All right. This is how a tendon works. It's actually very simple. This is the end of a tendon. This is what it looks like beneath one of those tendon caps I showed you before. The tendon is made up of 163 carbon steel wires about seven millimeters diameter each. So it's a lot like a muscle, where it has got many different strands. They wrap around the building,

a third of the way around, and on each end those strands stick through what we call a stressing washer, and then the end of each of those strands is mushroomed out to hold it against the stressing washer.

The way the building is tensioned, and this is coming into the detail of what we are doing right now is you have actually grabbed that stressing washer, I'll show you the device in a second, and you stretch the tendon, and then you place a washer back behind it to maintain it's stretch, if that makes sense. And the pull of the tendon is what applies the tension to the building and compresses the concrete.

On the next slide you can see the tensioning tool, and this is what is actually being used today on the building. This is a hydraulic ram which is capable of grabbing and threading onto those stressing washers, and then similar to a hydraulic jack that you would jack a car up with, you're jacking against these tendons and stretching them, and then washers -- shims are placed between that stressing washer and the wall to maintain the tendons in tension. Those are the activities that are ongoing right now.

Real quickly, to get to where we are today, this just shows a couple of photos during the outage last fall that identified the delamination that we have

subsequently repaired. This shows the equipment that removed the concrete, and you can see each step as the concrete wall was eaten away. You can see an outer rebar mesh. The tendon sleeves themselves are in the photo labeled number two. Inside these first horizontal tendons, and then in the inner vertical tendons are these tendons that we're currently tensioning. This is from the original steam generator replacement outage last fall.

Once we opened up -- removed all the concrete, a steel liner plate that is that barrier to radioactive release is on the inside there. That was removed, which allowed us access in and out of the building. In photo four, you can see the original delamination as you look up into the opening that was made so that the steam generators could pass into and out of the building. That crack is the delamination that was subsequently repaired. When we identified it, we did -- this kind of shows a cut-away, by the way, of the way the building is designed. You see that liner on the far side of the photo, and then coming out is 42 inches of concrete. First are those vertical tendon sleeves, and then the horizontal tendon sleeves, and then that rebar you saw as we ate the wall away. This kind of gives you a feel for the way the building is constructed. It also shows

where that delamination occurred.

At the end of the outage, and after discovery of the delamination, we were able to do nondestructive testing. The repair area is the area between what we call Buttresses 3 and 4. You can see those to the left and right of this photograph. Buttress 4 is actually behind the scaffold staircase to the right in the photo. Buttress 3 is to the left, and you can see the tendon caps. There was a hourglass shape of delamination that had to be repaired.

Real quickly, for completed repair activities, it is important as we talk about going forward, to first cover our priorities. Because it explains the scope and schedule for the activities we have going forward. First and foremost, the repair activities was focused on restoring the plant back to its nuclear safety condition to protect the health and safety of the public, and also the work had to be performed in a manner that did not risk our workforce.

Second, and I want to emphasize this point, is our goal is to restore the asset for our customers. While we are not going to go into the cause today of the delamination, there are elements of that cause which drove us to very specific and careful consideration of the techniques used to repair the walls so that we did

not cause further damage. The reason being two-fold, and I mention it in bullet three. First of all, to maintain the NRC license condition. It's very important for us -- from the work we have done to date, and even more so for the work we have over the next several weeks, to maintain the licensed condition of the plant.

Should we not be able to maintain the current design of the plant per our NRC license, that license would have to be amended, which would cause a significant delay in the return to service of the plant, so we have been focused on that in order to bring the plant back to service sooner for our customers. And then lastly, of course, to bring the plant back into service and into repair.

Let's talk a little bit about the overview of the repair activities. First of all, the root cause had to be identified. I will not go into the root cause today, but it was important because it has driven the schedule to date as well as the schedule going forward with regard to making sure we have the right engineering model to understand how to make this repair both, one, to restore the design of the plant, but also to ensure that no further damage occurred.

In doing so, we had to develop first-of-a-kind engineering techniques that had never been used before

in the industry. The delamination was a surprise --

COMMISSIONER BALBIS: Excuse me. Is it Mr. Franke?

MR. FRANKE: Yes, it is.

COMMISSIONER BALBIS: If we could, again, kind of focus forward on not how we got here, but --

MR. FRANKE: Sounds good.

I'll have to talk a little bit more about the engineering, because we're currently in that. Currently we are still doing engineering work, and I'll cover that briefly going forward.

The bottom line, we have detensioned additional tendons since the damage. We have removed the delaminated concrete, and we have placed concrete. Going forward, we're retensioning the tendons, and that's currently in progress. After that, the last three bullets -- last four bullets -- I'm sorry, the last three bullets on this slide are the activities that remain. We have to continue to retension the tendons. That still relies on additional engineering work that is ongoing, and I'll talk about that in a minute. We have to test the building to validate that it has been restored to design conditions, and then we are going to start to place the plant back in service. Those are the three big steps that remain.

Real quickly, this just kind of gives you an idea of the kind of computer modeling that we had to create in order to understand how to both detension and the going-forward actions of retensioning the building. This gives you a feel for the computer models that were used to determine how that could be done without causing any further damage. This shows the stresses and the displacements in the wall as you detension -- perform detension and retensioning activities. Okay.

We have detensioned the building. We have removed the concrete. In doing so, and it is important to note in this photo after we performed the original detensioning, we had subsequent cracks in the building. Why it is important that I mention it today is that the identification of these additional cracks that occurred during the detensioning activities last year created a need to go back and revise our engineering model at that time to make sure that in our retensioning activities we caused no further damage.

I don't know if that is understandable, but the bottom line is we knew that we would be placing the building back into conditions similar to what occurred in March last year during the activities we are undergoing right now. So it was very important that we understood what caused these cracks and how to prevent

them. Now, we did anticipate some of these cracks, but it demanded us to go back and re-review the engineering models that had been used to detension the building so that we could retension with confidence that we would cause no further damage.

Let me go ahead and get to a future slide. This kind of steps us through the phases that we have gone through today, and let me talk to you now about what remains. All right. First of all, the retensioning itself is being done in two phases. The first phase is four passes of building, in other words, four sets of tendons that are retensioned, and then you come back to a second pass and retension other tendons that are near the wall.

We are currently in pass two of these first four passes, which make up Phase I of retensioning. We believe from today that Phase I will be complete within 14 days. In parallel for that, the engineering activities that I talked about before are ongoing in parallel. We believe 12 days from now, and that's the current schedule, that we will have the engineering in place to start the second phase of retensioning, which is passes 4 through 11. The second phases right now, the current schedule is 27 days. The actual duration will depend on a lot of uncertainties that I'll talk

about in a little bit in some further slides.

There are 16 days of containment testing and post-containment testing recovery with a nine-day start up. If you add up the critical path days, that's about 66 days from today we believe the unit will be returned to service.

Let's talk a little bit about the detail of these activities going forward. The tendon retensioning; we're at a total scope of 155 horizontal tendons and 64 vertical tendons that are in these 11 steps. We also need to restore 80 of the verticals back to its original state. We're using a partial tensioning sequence, which meanings of these horizontal tendons they will be first tensioned to 50 percent of their final tension, and then when we come back to the subsequent passes, these tendons will be fully tensioned to their as-left state.

There are 11 passes. Currently only the first four passes, as I mentioned before, have been approved by engineering, and we are working through the engineering to release the last passes currently. We were able to release the first four, and the subsequent passes required additional engineering work to verify that no further damage would occur.

The model itself that -- and this is the

detail of the engineering work that is ongoing right now. We are using a -- Abaqus is the computer software program. It's a Visco-Elastic Fracture Energy Model. There are two steps of this model. The model itself recreates the life of containment showing the original placement of the concrete. The concrete itself changes over time, and its properties change with the conditions under which it has been. This model is able to replicate that.

There are two main components: A global and a microscopic model. The global model models the entire building itself. This is a very complex model that has been built. This model actually shows the shape of the building and the deformations that the building experiences as each of these tendons are stressed; that's very important because we have learned that the shape of the building as it is tensioned and retensioned determines which area of the building are subject to damage.

Once the global model is done, we identify those localized areas that require a very in-depth or microscopic review in engineering space. We go down to looking at individual blocks as small as one inch by one inch in evaluating the stress and strains in each corner of these blocks. This work is going on right now. We

are looking microscopically at a number of areas in the building to determine the forces in the walls as we complete these final phases, which have yet to be approved by engineering.

This microscopic model is able to identify at what point the building will crack and whether this crack will grow. The following photos are just some pictures of the engineering model output and shows how the global model and the microscopic models work together to identify potential damage.

All right. While we are retensioning, we are monitoring the building for damage. We have three ways we're doing that. We have strain gauges which are capable of measuring the forces in the wall; we have acoustic emission detectors or sensors, which are listening for any damage as it may occur so that we can stop it before it becomes an issue that would require a repair; as well as we were validating the computer models by using a laser inside the building which actually measures the dimension of the building, and measures the changes in shape of the building as we move forward.

The next photos just kind of show the locations of some of these sensors to demonstrate how complex and how careful we are -- how much care we are

taking in ensuring we don't cause any further damage to the building.

These are some output from the acoustic monitors. And then the laser scan itself. As I mentioned, we are using this data to compare the actual model, the actual building response to the predicted response that the models in engineering space showed us.

We have a number of contingencies. Should we see any issues from these monitoring activities which need to be resolved, we have contingencies in place to deal with them.

If you remember back on the schedule slide there were a number of post modification testing activities to speak tc those details. We will be doing an impulse response test, which basically validates that the building has not delaminated after the repairs are complete. We also have a number of visual exams which are required both of the concrete and the steel liner plate, and we have to map any cracks in the concrete which may exist prior to the pressure testing. We also will be doing a laser scan of the building once all the tendons have been retensioned to understand the shape of the building going into the pressure testing.

The most important tests that require the most amount of time in that sequence and schedule involve

pressure testing the building. In this case, we'll pressurize the building to just over 63 pounds per square inch. This is actually higher than any design pressure required -- I'm sorry, any pressure required by the design in the worst-case conditions.

The structural integrity test follows an ANSI standard in which you measure displacements inside the building as it is pressurized to verify that the structure of the building is reacting the way it was designed. We will also be looking at those strain gauges, and we map the cracks in the building at the peak pressure.

Once the structural integrity test is completed, we have to depressurize the building and allow the building to stabilize, and then we pressurize it again in order to perform an integrated leak rate test. This test validates that the leakage boundary, that steel liner, is capable of preventing leakage outside the building at the highest pressure that the building could ever see in any design required conditions after any transience inside the building.

Once the testing is complete and the building is turned back over to the plant staff, we will be starting up the plant. We have a number of activities that have prepared us for that. Since the last time the

plant was operated, we have done a large number of modifications to the facility, both on the steam plant as well as the new steam generators, so there's a lot of testing activities that are involved prior to placing the plant back in service.

We have completed all tests which could be completed with the plant back on line. But most of the -- many of the steam plant components have to be tested during start up. The start-up tests are integrated into the start-up testing sequence. We have performed readiness reviews in order to optimize our restart of the plant, both by the Institute of Nuclear Power Operations as well as the Nuclear Generation Group brought in an assessment to make sure the plant was ready for restart.

Our crews have been back through operations training continuously through the shutdown, but specifically we recertified them with a special focus to get them focused on restart of the plant and their ability to operate the plant after the shutdown. We have done the same thing for some of our technical staff for those kinds of activities which occur with the plant on-line as opposed to the work they have been performing when the plant is shut down.

There are a number of potential impacts to the

ability to execute the schedule as I detailed on Slide 32. First of all, the engineering activity that I indicated was working in parallel, that has to be in place prior to the completion of our Phase I retensioning or we will be waiting on engineering before we can go to Pass 5, the first part of Phase II of retensioning. Since that engineering is not complete yet, it still has the potential to affect that schedule.

Additionally, I went and detailed a little bit the monitoring equipment that is in place. That monitoring equipment could reach some alert level which would require us to respond to it. That can slow down the return to service of the plant.

Additionally, this is a first-of-a-kind construction activity. No other nuclear plant has been through this evolution. As such, we learn as we go. There are opportunities for construction equipment failures. We may identify additional work that is required, and this is outside work, so the weather has the ability to delay us. Obviously there are times when the workers cannot work on the building due to inclement weather.

I also want to indicate that the NRC has the authority to come in and require additional reviews of our engineering design. We currently have a start-up

meeting with the NRC prior to restart. We don't see any holds to that right now, but the NRC has their own authority and they can require additional views prior to plant restart.

And, additionally, we have a number of equipment tests prior to return to service not associated with the containment itself which could delay startup. There are a large number of new equipment in the facility that have to be tested, and part of our schedule itself, including the schedule that I just detailed, included contingency actions should we have problems with that testing. For example, in that schedule that I detained, the startup consequence, there are times to respond to equipment challenges that may be revealed. I'll give you one example. We have a new statter (phonetic) and new rotor on the generator.

We know that there is a test that requires us to validate the air flow through the generator is as we designed it, and while we have placed it in the condition we believe is the right status to provide that air flow, you can't measure it until the generator has been spun with steam. We don't have the steam to do that. Once that test is complete, we may have to go back in to make some adjustments inside the generator. That time right now is currently in the schedule. So

all of these potential schedule impacts really lay on both sides of the end date. And what I mean by that is if the first time we spin that generator up, for example, it is in design, then that return to service will be earlier. If we run into an emergent work activity with construction, that schedule may be later.

So what I want to emphasize is this is the best information available today. There is still a lot to learn as we move through the repair and certainly some to learn as the plant comes back in service. So while I am certain the plant will return to service, right now the specific date is going to be subject to a large number of the uncertainties I just detailed.

MR. BURNETT: Thank you, Commissioner.

The next slide just discusses very briefly a couple of things. Three things that have to be done, and one thing that the Commission and the parties may want to consider being done after a return to service. We'll have to calculate the final replacement fuel and power costs, and that should not be a heavy lift. That's something we could do relatively quickly.

Collect and process remaining documents. As this process goes on, documents that may be relevant to this case are being created, so we are trying to collect them as realtime as possible and process them to have

them available for staff and the parties. Again, we are doing pretty well with that and keeping pace.

The next one on here, the bullet of comprehensive briefing and Q&A, I have not vetted this with the parties yet, but it may make sense prior to going in the case at some point if the parties and Progress could agree on a presentation to have Crystal River 3 101. Perhaps some of the key terms, the acronyms, some of the things just to gain a familiarity, maybe an FAQ, frequently asked question type Q&A. Anything to move it along so we don't have to waste hearing time getting people caught up to some of the more Byzantine nuclear aspects. And, again, I have not discussed this with the parties yet, but something to think about to maybe streamline.

And then, finally, completed case filings. If we file before return to service, of course our case filings will not tell all of the story. So we'll either have to update that or we'll have to wait until return of service and file the entirety. So those are just some housekeeping next steps.

And that would end our presentation, and we are available for any questions, sir.

COMMISSIONER BALBIS: Thank you.

And I think that provided a good background

without stepping in the wrong area. And I guess I'll now turn it over to the other parties, if you would like to make any comments at this time.

MR. REHWINKEL: Thank you, Commissioner.

I will go first from Public Counsel. We appreciate the factual presentation that Mr. Franke has made, and we have been dealing with this issue for over a year. We believe Progress has kept Public Counsel's Office apprised of the major issues and schedule impacts as they have changed, at least at a high level, and we appreciate that.

Public Counsel's Office believes, Commissioner, that this docket will involve a significant amount of complexity. Issues of imprudence that may be evaluated exist on several levels. One of which is the overall project planning, also the specific engineering that lead to the delamination event, also the repair process and time line that you have heard some about today, as well as the replacement power decisions.

These are ones that are manifest, at least to this office at this time, and they represent potential areas where imprudence may be found. On November 11th of 2010, the Public Counsel served discovery, and at the outset gave Progress Energy 60 days instead of the

standard 30 days to produce documents due to the holidays, due to the on-going repair work, and with an awareness of the magnitude of the documents that we were requesting.

On January 11th, Progress produced, at current count, over a million pages of documents in their Tallahassee Office, and on that same day the Public Counsel's Office began review of those documents. Also, on December 22nd, the Public Counsel noticed three depositions for the project planning engineers for the steam generator replacement project. We had, I should mention to you, asked counsel for Progress to be able to take these depositions earlier, perhaps even in the days before the Christmas holidays. But we were rightfully reminded by Progress that some of the folks that we might want to talk to were involved in the very activities that you have heard about today, and that was a point well taken.

It has been a fundamental precept of our office in participating informally and formally with Progress in this case is that what is most important is getting the building repaired, as Mr. Franke mentioned, for the benefit of the customers as well as the company.

And we think that is an important thing to be considered both by the parties participation in this

docket as well as the Commission's scheduling of the docket. We have no complaints about the pace of discovery or the availability of witnesses, because repair the building is first and foremost, and we do not want to in any way interfere with that.

The depositions that we scheduled by agreement of the parties and the company were combined into two full-day depositions by panel of these three planning engineers, and we concluded those close to the end of the day on this past Friday. The Public Counsel's Office believes that the issues before the Commission both with respect to the magnitude of the dollars as well as the complexity of the engineering and planning that are involved in this docket are beyond, by a great magnitude, anything that the Commission has seen before in a prudence docket. And we think that is an important thing to consider in scheduling of this case.

We believe that we owe it to our clients, the customers, to do this case right. The dollars are too large, the issues are too complex, and the case is too important to rush. We are very leery of making too much of a connection between the happenstance of an annual fuel factor hearing and the facts of this case which have not, to this date, as you have heard today, become final.

The issues in this case will involve not only the past, the root-cause analysis, but the continuation of activities that still have not been completed. They are significant and crucial engineering that is on-going today, and that will bear in the final valuation on what happened and the steps that the company has taken to mitigate damage that the customers ultimately may have to pay for, both with respect to the engineering as well as the replacement fuel costs.

We don't believe that the schedule of the fuel docket or the fact that a decision has been made and is final with respect to allowing replacement costs should influence this docket. We think it should be a stand-alone docket dealing with the prudence of the activities of Progress Energy so that it can be fair to both the customers and the company.

And in that regard, we believe that the Commission should allow ample time for the company to complete their repairs, to make their filing, and for parties to then take the proper steps, including the hiring of appropriate expert witnesses to test the testimony that they file.

The Public Counsel has taken it upon itself to begin our efforts to start, in this massive case, well in advance of the filing of the company. And the

company has been very forthright and very open to allowing us to do that, because they know that this is a case that may take some time.

So our plea to you in devising a schedule for this case is that there is no reason to rush. We don't fault parties, or the staff, or the Commission for trying to put some definition in the schedule and to come up with some hearing dates that we can shoot for. We believe August is too soon. We are much more open to looking at dates later in the year, as long as there are no inordinate or unanticipated delays in the filings that the company makes.

So I have no definite dates to offer to you other than August is too soon, and there is no reason for us to try to cram a square peg into a round hole to meet a filing date for the fuel factor docket, because that's something that happens every year at a certain time of year, and it is agnostic to what the facts are in this case, and the pace of repairs, and the pace of the company's filing.

So we are very mindful of the fact that customers are paying for replacement costs, at least a definite or finite calculation of replacement costs that were determined in the fall. We don't take that issue lightly, but if there is imprudence and there is refunds

to be made to the customers, we would rather get it right than to rush and do half a job.

So with those remarks, I would turn it to over to other counsel. Thank you.

COMMISSIONER BALBIS: Thank you.

Ms. Kaufman.

MS. KAUFMAN: Thank you, Commissioner.

Would I be permitted to ask a question or two about the schedule that Progress has presented?

COMMISSIONER BALBIS: Yes.

MS. KAUFMAN: And I guess this is for Mr. Franke. On the Page 32 schedule that you talked about --

MR. FRANKE: Yes, ma'am.

MS. KAUFMAN: -- the total duration of the outage that you are now predicting today is about two more months, correct?

MR. FRANKE: That is correct.

MS. KAUFMAN: Actually, I tried to count the days out, and it actually comes out to March 31st, which is the last day of the third quarter. I mean --

MR. FRANKE: First quarter.

MS. KAUFMAN: Right. Sorry.

You also talked, when you were on Slide 50, about some things that -- no, that's Mr. Burnett's

slide, the slide before, Page 49, some potential impacts to that schedule that might come up.

MR. FRANKE: Yes, ma'am.

MS. KAUFMAN: Did I hear you correctly that there is some contingency time built into the Page 32 schedule?

MR. FRANKE: Yes, ma'am. For example, there are, I think as of this morning, about 1,000 different line items in that schedule, okay. So we are talking about something very -- a lot of action is required between now and return the plant to service, including all the testing actions.

For example, the generator test I discussed before. That test right now, if we execute the test and the test is satisfactory, it takes a couple of hours. If we find that the flows inside the generator are not as required, we have got a six-day contingency in that current schedule to secure the turbine, to make it safe to work on, and to go into the generator and move some plates and bolt them in a new position, bolt it all back up and then start the generator again. Those days will not be required if the test is satisfactory. So that's an example of some contingency time we have in the schedule.

Now, there are other items that could make it

go longer. This is one of those things where to know today precisely when the generator is going to sync to the grid with a high level of confidence on that preciseness is just not reasonable.

MS. KAUFMAN: I understand that totally, but my point is that the schedule that's on Page 32 considers contingencies. It doesn't assume that every single task is going to be perfectly done, as you said, in six hours, but it builds in some -- I don't know what to call it -- some float time there for things that might not go exactly according to schedule.

MR. FRANKE: For some activities. Not all the things that can go wrong are in that schedule.

MS. KAUFMAN: Okay. I guess that would be --

MR. FRANKE: That's impossible.

MS. KAUFMAN: -- an impossible task, yes.

Thank you for that clarification; I appreciate it.

MR. FRANKE: Yes, ma'am.

MS. KAUFMAN: Commissioner, I wanted to follow up, if I might, on Mr. Rehwinkel's comments on the scheduling. And we certainly agree that bringing this unit back safely to service for the customers is a top priority. It's a very low-cost unit, and every day that it's out, you know, it's costing the ratepayers money.

So we certainly think that is a priority.

We also think that while it's true, and I'm not going to go into what happened in the fuel adjustment hearing, that currently, as Mr. Rehwinkel said, customers are paying for their replacement fuel and there has yet to be any determination as to whether or not what occurred in this instance was reasonable and prudent.

So FIPUG is very anxious to have that determination made. Whether it occurs in conjunction with the fuel hearing is an issue, but I think that there are other mechanisms that the Commission has and that we might discuss with the company that would certainly allow, if a refund is ordered, and, of course, we don't know that at this point, but it would certainly allow the return of those monies more quickly to the customers.

And so what we would like to see is we would like to see this case scheduled and determined not in a rush, but as quickly as possible and as efficiently as it can be so that, you know, we get a determination as to the reasonableness and prudence, or lack thereof, of Progress' decision, and so that we get the pot right, you know, as to who should be paying these fairly large -- I mean, they are quite large replacement fuel costs.

And FIPUG commits and remains willing to work with Public Counsel, with the parties, and with the Commission to get that done.

I certainly understand Mr. Franke's comments. It's not a precise science where he can say March 15th the unit is coming back on line. But I think as we saw in our pleading, Progress has been less than accurate, I guess, in the many predictions that they have made in the past, and that does cause us some concern, especially in light of the fuel decisions.

So we don't have an exact date to suggest to you, either, but we certainly would like to see this happen sooner rather than later, but protecting all the parties' rights to discovery and a full and a fair process.

Thank you.

COMMISSIONER BALBIS: Thank you.

I'll turn it over, I'm sorry, to our teleconferencers.

MR. BREW: Thank you, Commissioner.

This is Mr. Brew. I would like to echo Mr. Rehwinkel's comment that in our view the priority is getting the unit back to service. We are a little leary of the suggestion of the time frame in the Progress motion until we actually see the unit back in service.

So my suggestion might be that the parties take some time now or off the record to talk about scheduling a little bit, rather than leaving it completely open-ended.

COMMISSIONER BALBIS: Okay. Thank you. And if there are no other comments, I will turn it over to staff. And let me make sure you answer one question that I had, or at least a reminder, the Commission did approve Progress Energy to collect the replacement fuel costs for this outage, and if you can just state the disposition of those funds as far as being subject to refund or not.

MR. YOUNG: Yes, sir. In Order Number PSC-10-0734-FOF-EI, the Commission did approve Progress Energy Florida to collect funds subject to refund for the CR-3 outage, the repurchased power.

I've listened to what all the parties have said, also talking to technical staff throughout the course of the past weeks, and I think two slides -- the slide that's up right now speaks volumes in terms of the complexity of this case, and that is Bullet Point 2 and Bullet Point 4 in terms of collect and process remaining documents. Because if you go -- my fear is if we go to hearing and we don't have all the documentation that is necessary, I think it leaves the Commission without the

proper -- potentially can leave the Commission without the necessary information to make a prudence review in terms of the costs.

And like Mr. Rehwinkel said, from my perspective, I have never seen -- I have potentially never seen a case this complex since I've been here. So I think I would urge the Commissioner to be prudent in this decision before setting a hearing. And I think the ratepayers -- the money are held subject to refund, so the ratepayers are not being harmed, per se, if this hearing doesn't happen in the next couple of months.

MR. BURNETT: Commissioner Balbis, I'm sorry, sir, I didn't know if I was going to get a chance to talk about the scheduling element. May I do so?

COMMISSIONER BALBIS: Yes, that's fine.

MR. BURNETT: Thank you, sir.

I echo the comments that I have heard on the complexity of the case. And just very quickly, to put it in perspective, Mr. Rehwinkel processed in very short order tens of thousand of documents. We had probably 20 hours worth of deposition, and that got us through the planning phase of this project that began in 2002.

As Mr. Rehwinkel said, we've collected all the documents since 2002 until October of 2010 and placed them in our Tallahassee Office. Right now that is

spanning about 300 banker's boxes full of documents that we've just put in the room there, and we have categorized into 104 subcategories of potentially relevant topics. So it is a huge case.

I will say that certainly of all the parties, we're in the best position to try this fast. And if the objective is to get it done fast, we can do that probably better than anyone, because it's our case, it's our documents, it's our witnesses.

But I agree, you know, to be fair, we want everyone to have the time that they need, and we want a comprehensive look at this. We don't want to leave the impression that this needs to be fast-tracked quickly so we can have the upper hand on that, so I agree that it does need some time, sir.

COMMISSIONER BALBIS: Okay. Thank you.

One of the reasons why I called for this status conference is that one of the parties did raise concern about the schedule of bringing CR-3 back into safe operation. And I think that, you know, I, for one, would have liked to have seen the thousand line item Gantt chart that shows it, just because I can only assume that the level of complexity with something like this is immense.

And really my main concern was if the hearing

is scheduled by a certain time is there any benefit. I mean, are there funds that could possibly be lost? And, I think with staff's reiteration of what the Commission approved, and that those funds are subject to refund -- and one question I do have for Progress, as far as those funds being subject to refund, they are the account holders of record, correct? So I want to make sure that the account holders at the time that paid for these additional costs, if there is a refund, would recover that amount.

MR. BURNETT: Commissioner, I've never understood it to work that way, so I think the answer to your question is no. I believe that those funds, that the amounts are held subject to refund and are redistributed at the time that the refund is ordered with interest. I'm not aware of any procedure by which those are tagged to certain accounts, just because of the flux of accounts going in and out and changing, even customers changing from account to account. I think the answer is no. I have never understood the Commission to ever do that as far as I know.

COMMISSIONER BALBIS: Okay. I know there is another item on the discussion, the possibility of bifurcating the hearing. We can have some discussion on that briefly from staff, but I think we have kind of

covered that at this point, at least for my benefit.

So with that we'll move on to other matters. From the parties, are there any other matters you would like to discuss?

MR. GLENN: We would just note one thing -- this is Alex Glenn for Progress Energy Florida -- just on fuel costs. Right now the fuel costs that we have collected were through December of last year. Progress Energy Florida and not its customers are eating right now all of those, any excess fuel costs that we have associated with CR-3 being down, and will be.

So as this plant, you know, is off-line January, February, what have you, we are essentially paying for those additional costs, not our customers, at this point. So in a sense there is a protection to customers, at least this year, on that plant being down. I wanted to make that clear.

COMMISSIONER BALBIS: Okay. Thank you.

If there are no other matters, I will note that an order memorializing this decision will be afterwards, but I will say, again, I understand the complexity of the process, and I think that having those funds safe, if you will, based on the Commission's past decision is important. And I think what is of most importance is bringing this unit in operation in a safe

manner as quickly as possible and move forward in that vein.

So, if there are no other questions, this meeting is adjourned.

(The status conference concluded at 2:28 p.m.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 27th day of January, 2011.

JANE FAUROT, RPR
Official FPSC Hearings Reporter
(850) 413-6732

Crystal River Unit #3
Repair Update
Briefing to the Florida Public Service Commission

January 24, 2011
Jon Franke, Vice President-CR3

Parties/Staff Handout
event date 01/24/11
Docket No. 100437-EI

Progress Energy

Agenda

- Background Information
  - Building Design
  - Completed Containment Repair Activities
- Schedule Summary
- Status of Remaining Repair Activities
- Potential Schedule Impacts
- Questions

BACKGROUND INFORMATION

NGG

Progress Energy

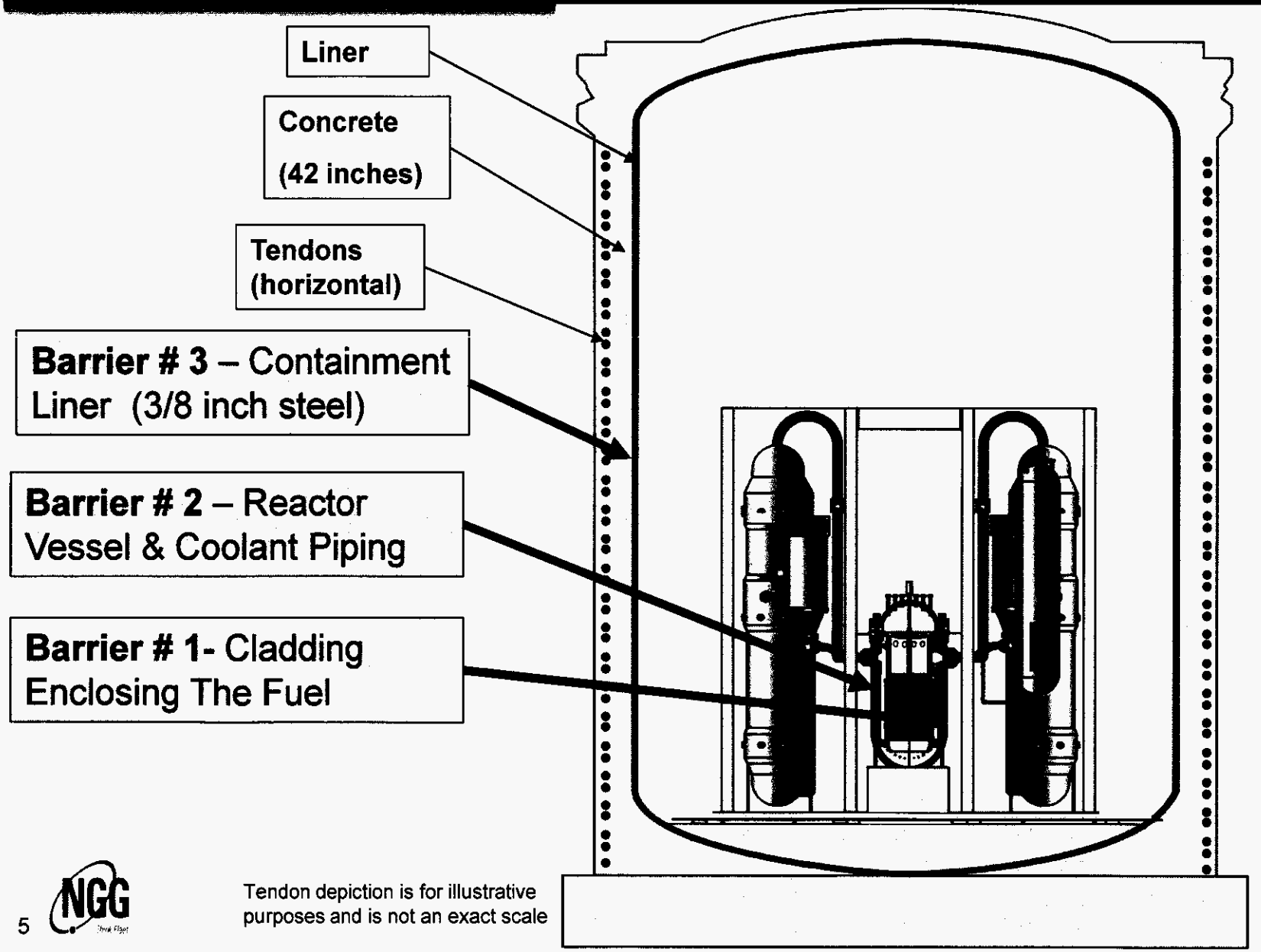
Steam Generator Replacement (SGR) Project

- Steam Generators Needed to be Replaced in 2009 to Support Continued Operation of the Plant.
- Replacement of Steam Generators Need by Inspection Results
- Planning Process Began ~2001
- About 8 Years of Project Planning

NGG

Progress Energy

Fission Product Barriers
Simplified Schematic

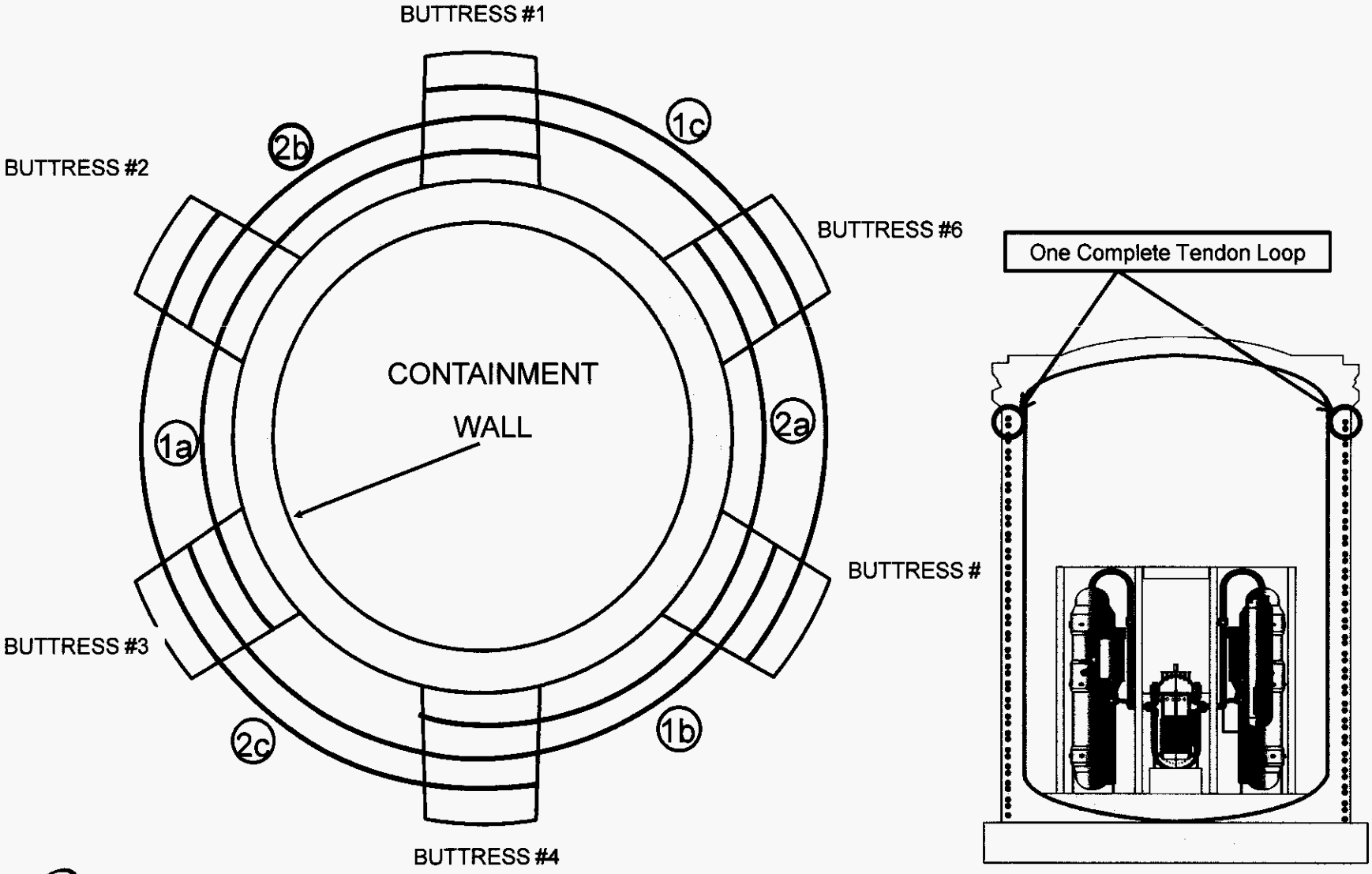


Tendon depiction is for illustrative purposes and is not an exact scale

Containment Tensioning System

- **144 Vertical Tendons**
- **282 Hoop Tendons**
  - 120° Each
  - 2 sets of 3 tendons form 1 complete loop
  - 47 complete loops
- **123 Dome Tendons**
  - 3 levels
  - 41 tendons each level
  - Oriented 60° to adjacent level

Containment Tensioning System



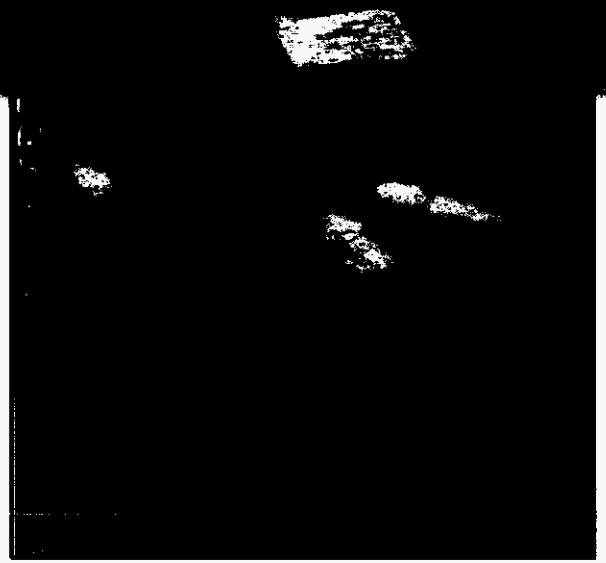
HOOP TENDONS PLACEMENT (EXPLODED VIEW)

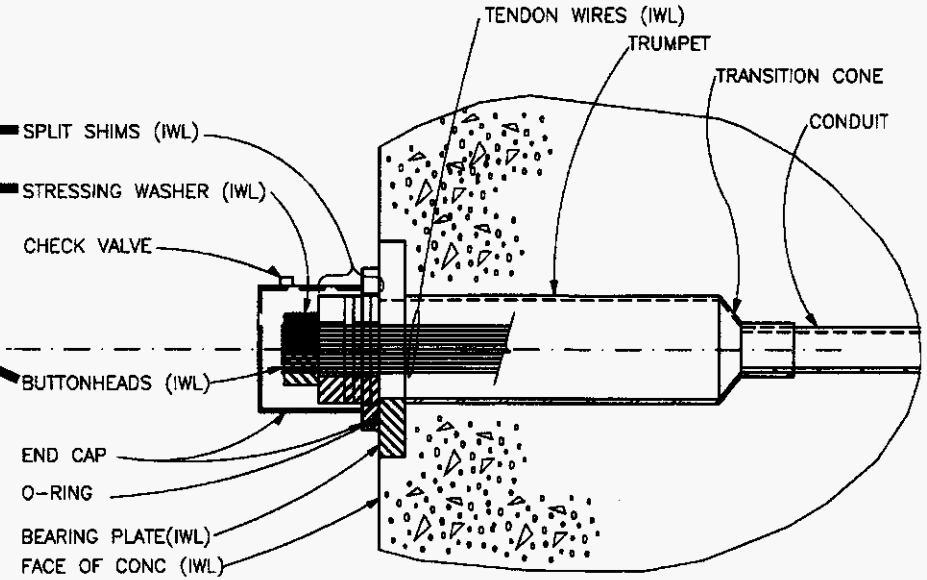
NGG

Progress Energy

Containment Tensioning System

- **Each Tendon Construction:**
  - 163 Tempered Carbon Steel Wires of 7 mm Diameter Each
  - Various size shims

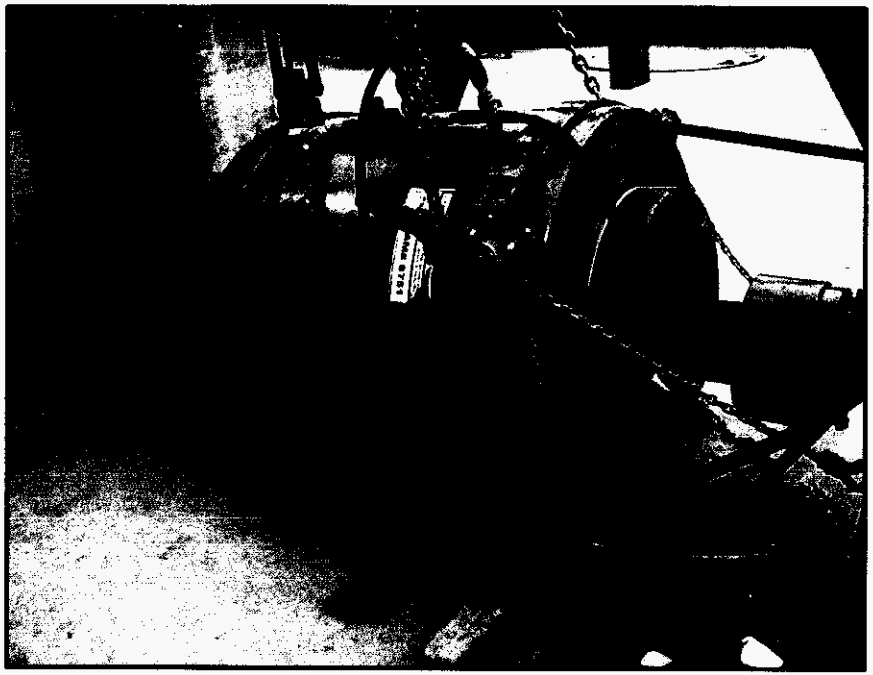


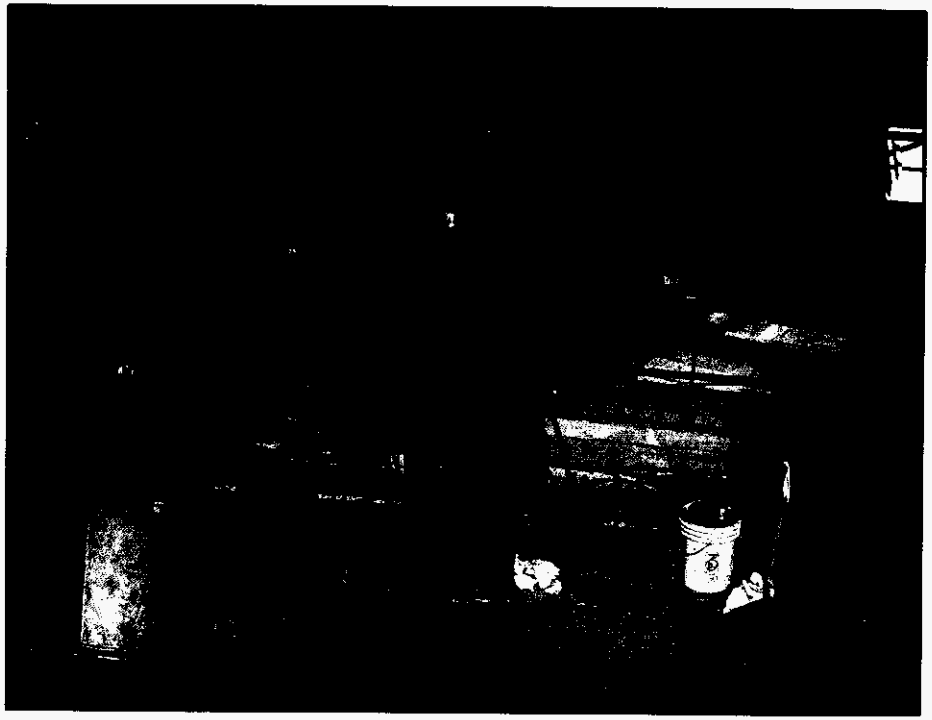


SECTION

Source Drawing:
425-020-SH-001-SH000

Tensioning Tool (Ram)





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Progress Energy

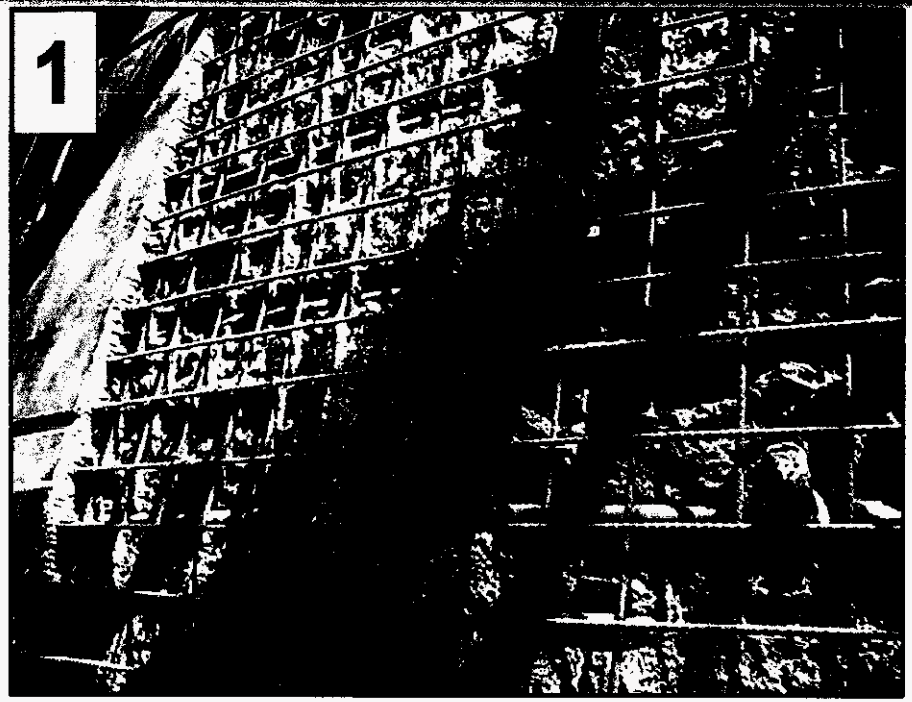
Steam Generator Replacement (SGR) Opening

Hydro-Excavation

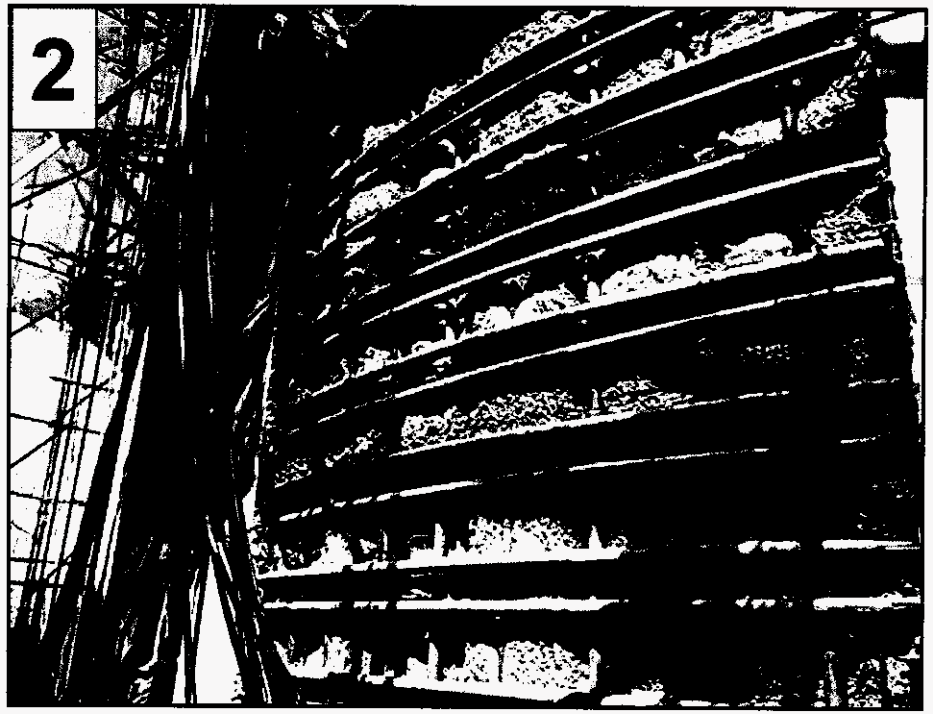
NGG

Progress Energy

Concrete & Liner Removal
Sequence



Outer Rebar Exposed



Tendon Sleeves Exposed

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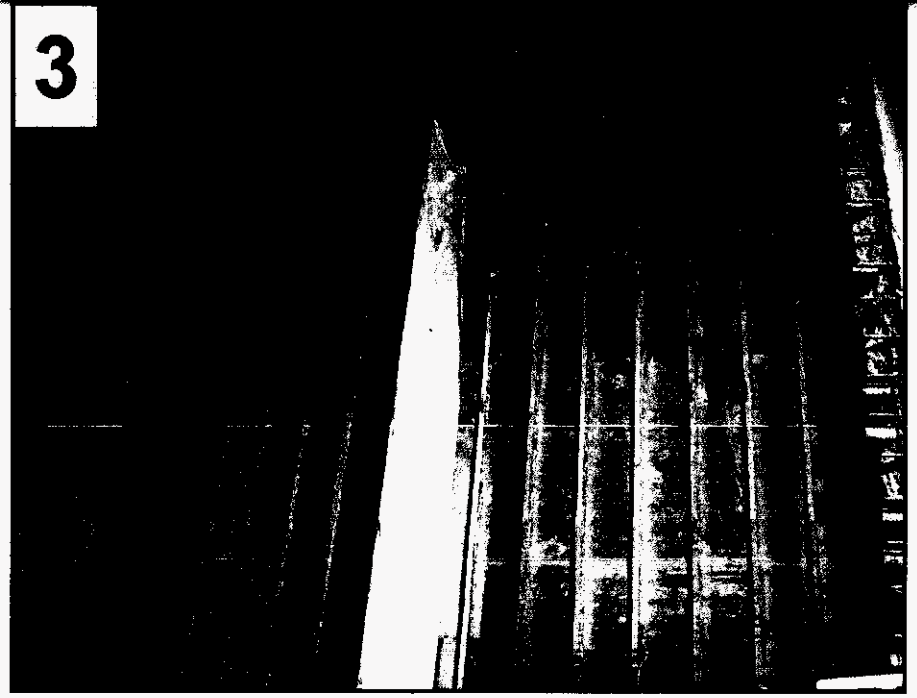
Progress Energy

Concrete & Liner Removal
Sequence (continued)

3



Containment Liner Exposed

4

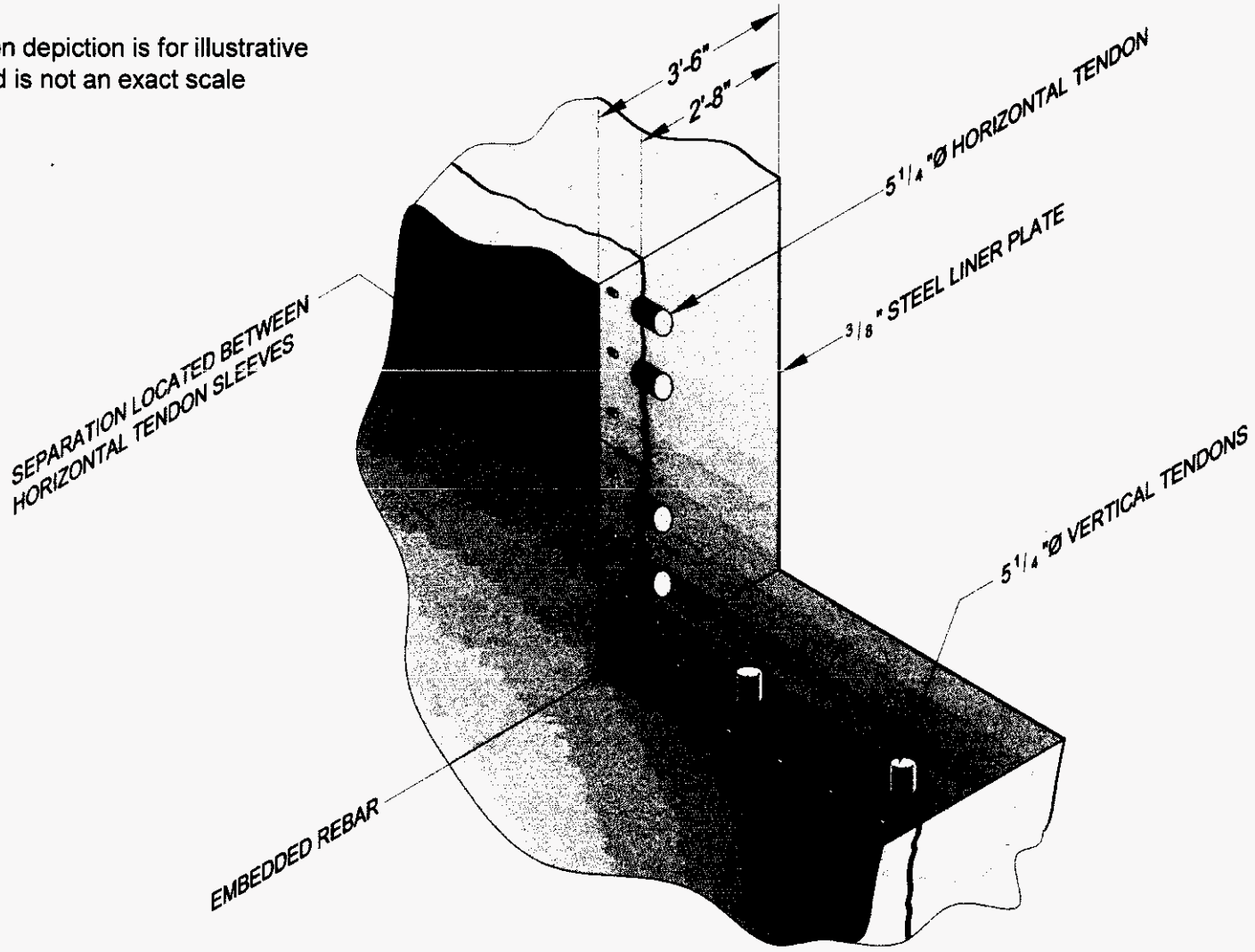
Opening Complete

NGG

Progress Energy

SGR Opening Sequence & Identification of Delamination

Note - Tendon depiction is for illustrative purposes and is not an exact scale



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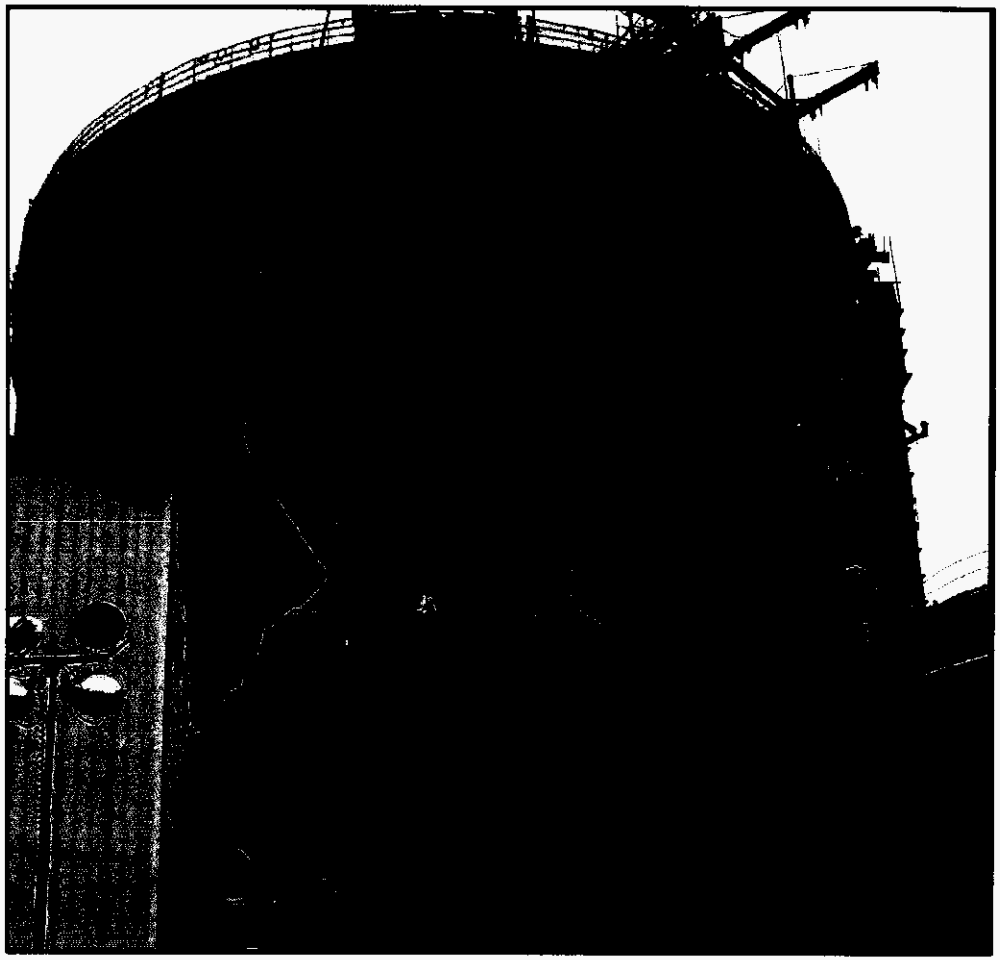
Progress Energy

SGR Opening – Bay 3-4
Showing Delamination Boundary

SGR Opening Dimensions

@ Liner
23' 6" x 24' 9"

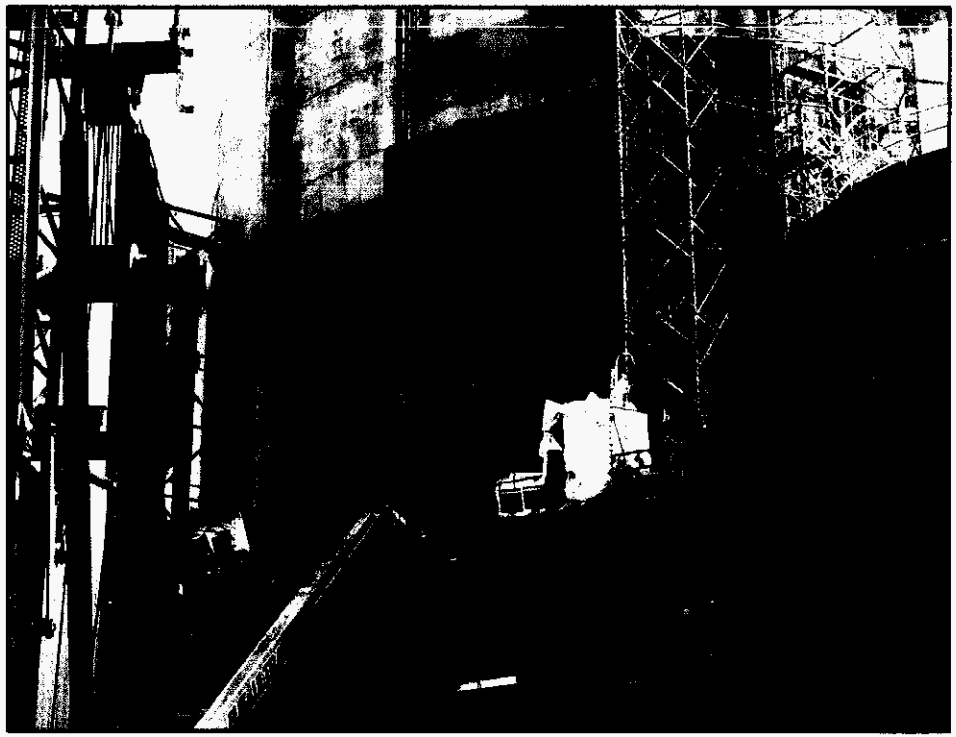
@ Concrete Opening
25' 0" x 27" 0"



Yellow line denotes boundary of delamination

Progress Energy

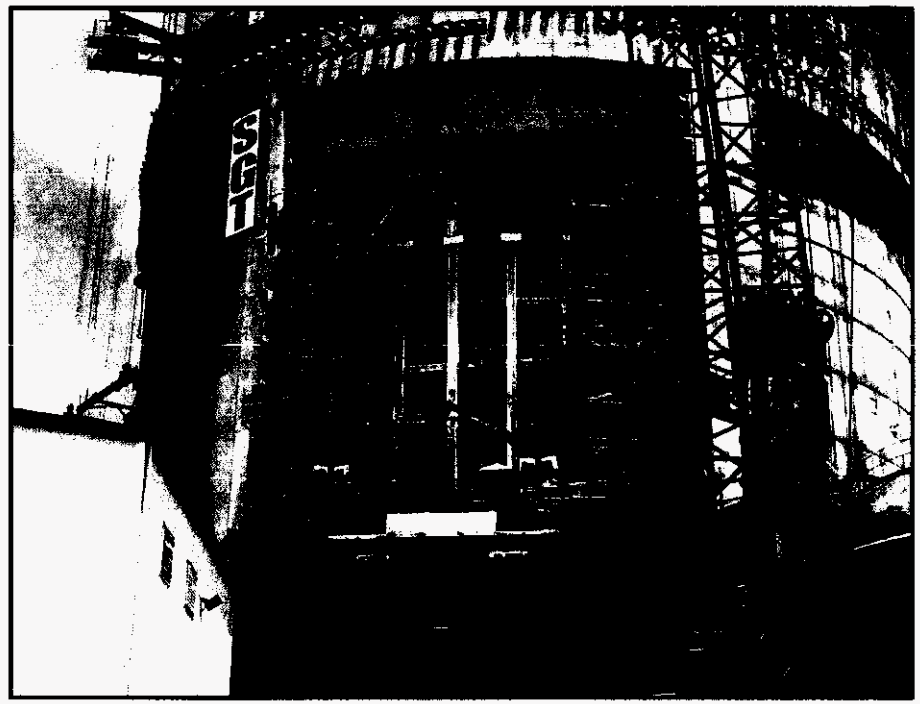
COMPLETED CONTAINMENT REPAIR ACTIVITIES



Progress Energy

Repair Plan Priorities

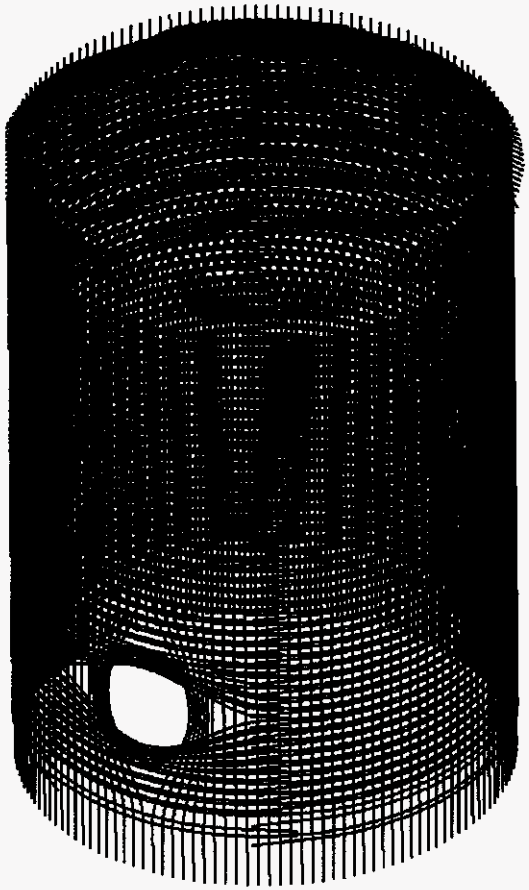
- Nuclear and Industrial Safety First Priority
- Ensure Plant Asset is Protected for Customers
  - Prevent further damage
- Maintain NRC License Condition
  - Restore design and safety margin
  - Repair without requirement for NRC License Amendment
- Return Plant to Service



Repair and Engineering Overview

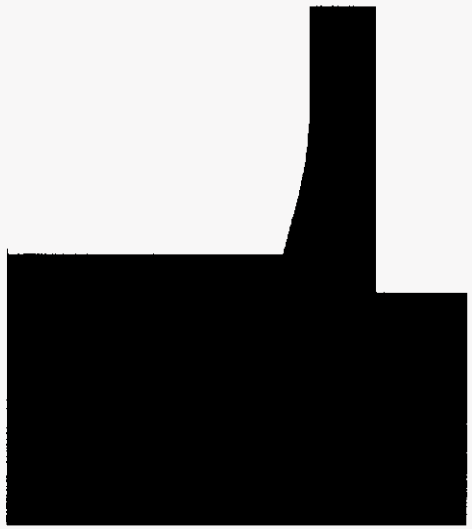
- **Application of Root Cause Insights on Repair**
  - Creation of engineering model required for de-tensioning
  - Development of "First of a Kind" engineering techniques
- **De-Tension Additional Tendons**
- **Delaminated Concrete Removal**
  - **Identification and repair of secondary cracks**
- **Concrete Placement**
- **Re-tensioning of Tendons – *In Progress***
  - Completion of re-tensioning engineering model – *In Progress*
- **Post-Repair Containment Testing**
- **Unit Restart**

Development of New Engineering
Required to De-Tension without Further Damage

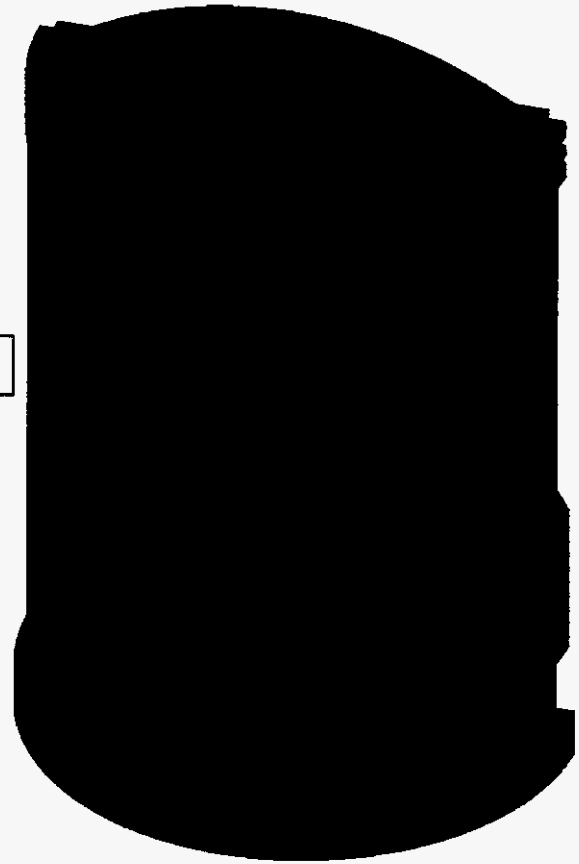


Modeling of Tendons

Mesh at Ring Girder connection



Mesh at Foundation connection



Composite Model

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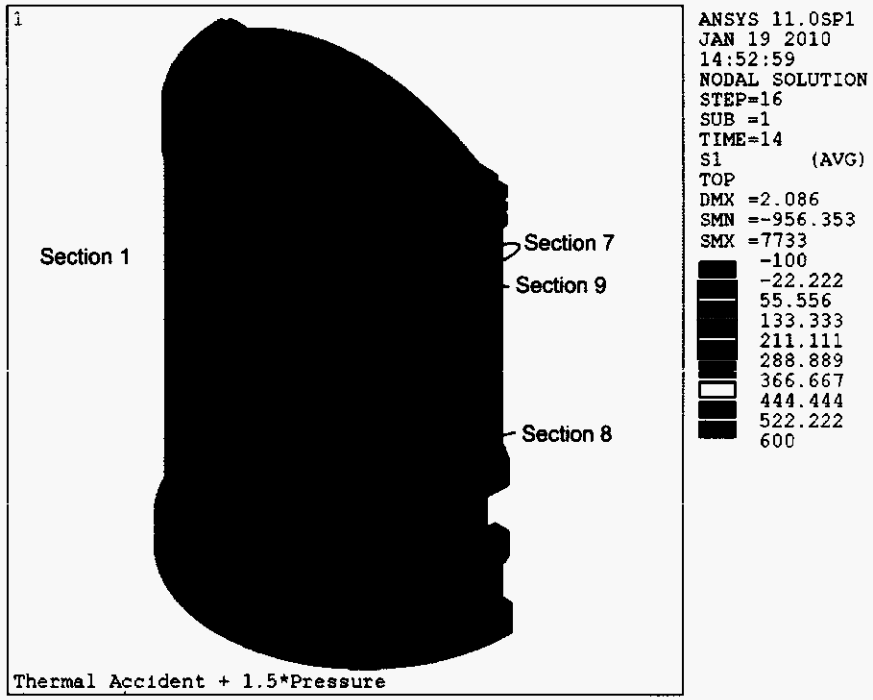
Progress Energy

Development of New Engineering
Required to De-Tension without Further Damage

Analysis of stresses while de-tensioned with SGR opening and delamination removed (preliminary results for hoop stresses)



Analysis of stresses after repair and upon completion of re-tensioning (preliminary results for 1.5 x LOCA pressure plus Accident Thermals)

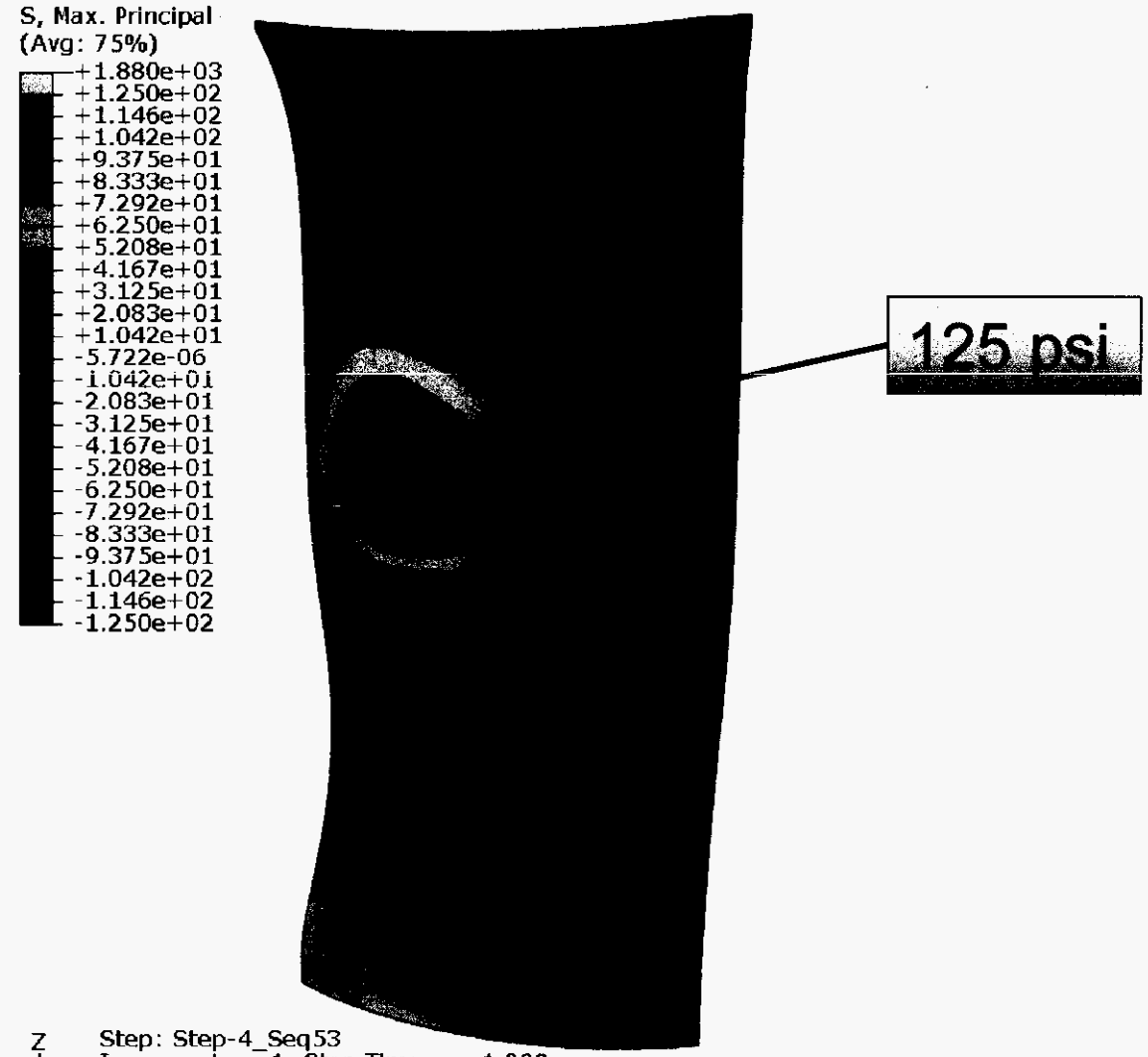
Tendon Scope	
155	Horizontal
64	Vertical
0	Dome

NGG

Progress Energy

Repair Tendon De-tensioning

Limiting Stress Check at Panel 2 – 3



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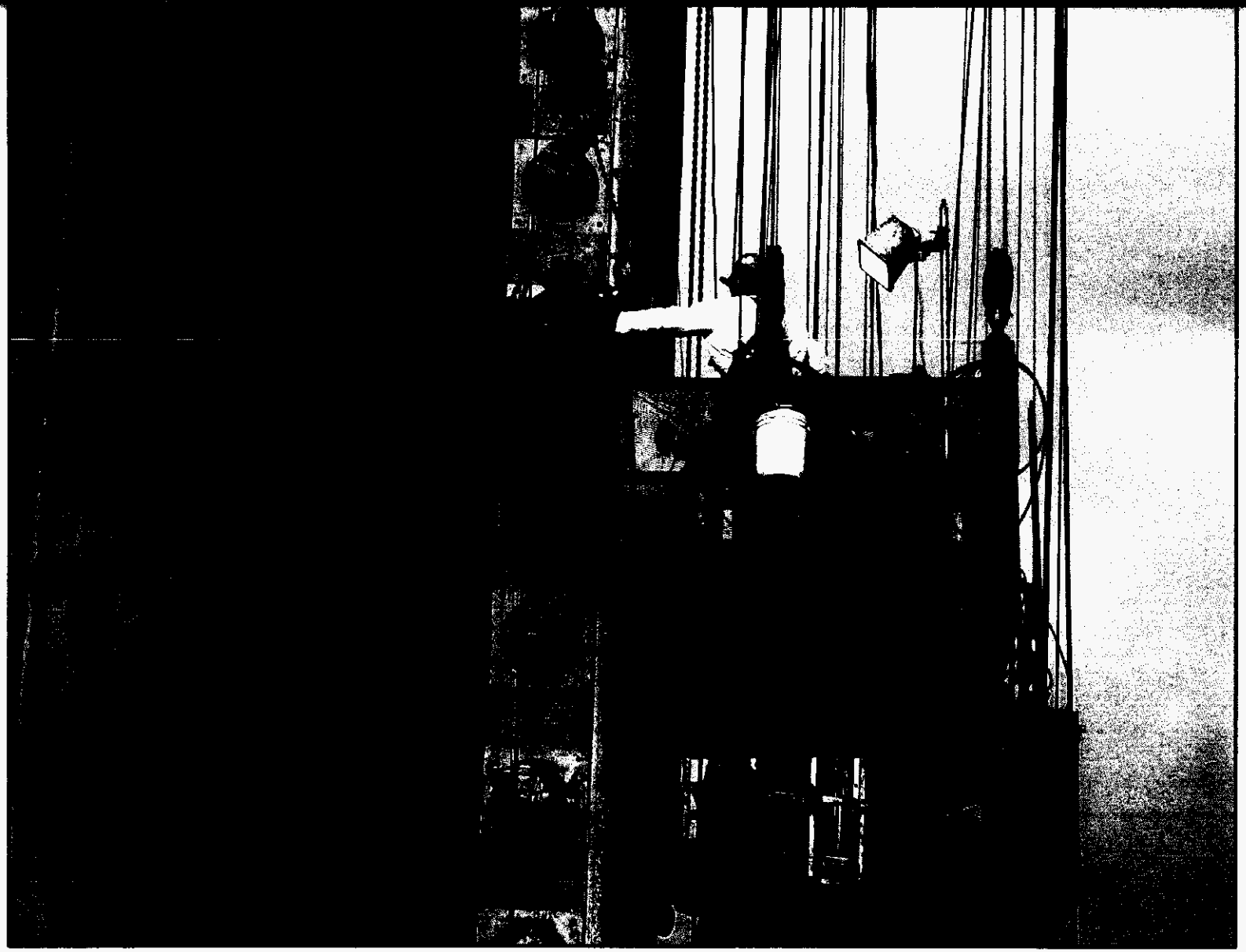
Progress Energy

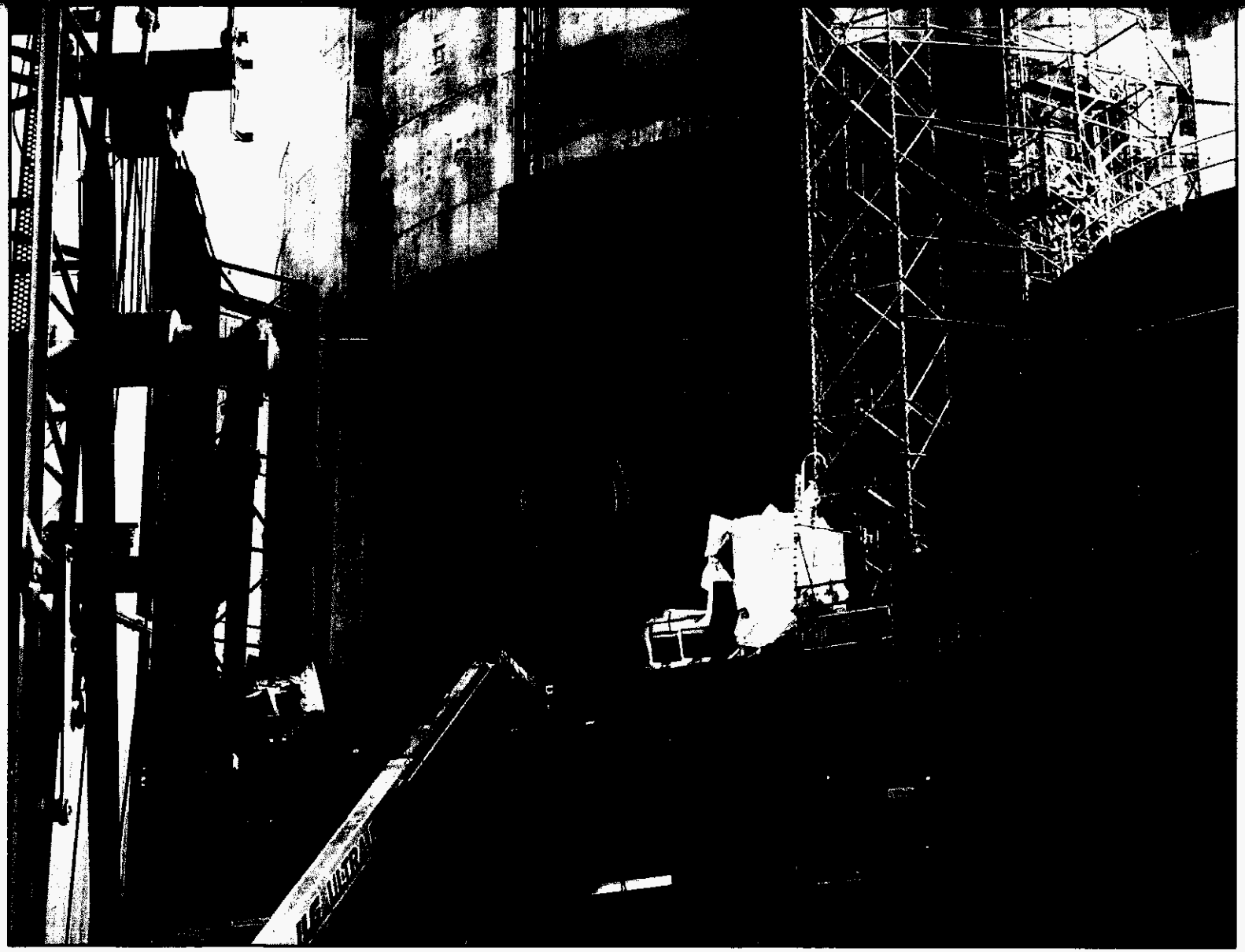
De-tensioning for Repair

Horizontal Tendons



Delamination Removal

Hydro-Excavation in Progress

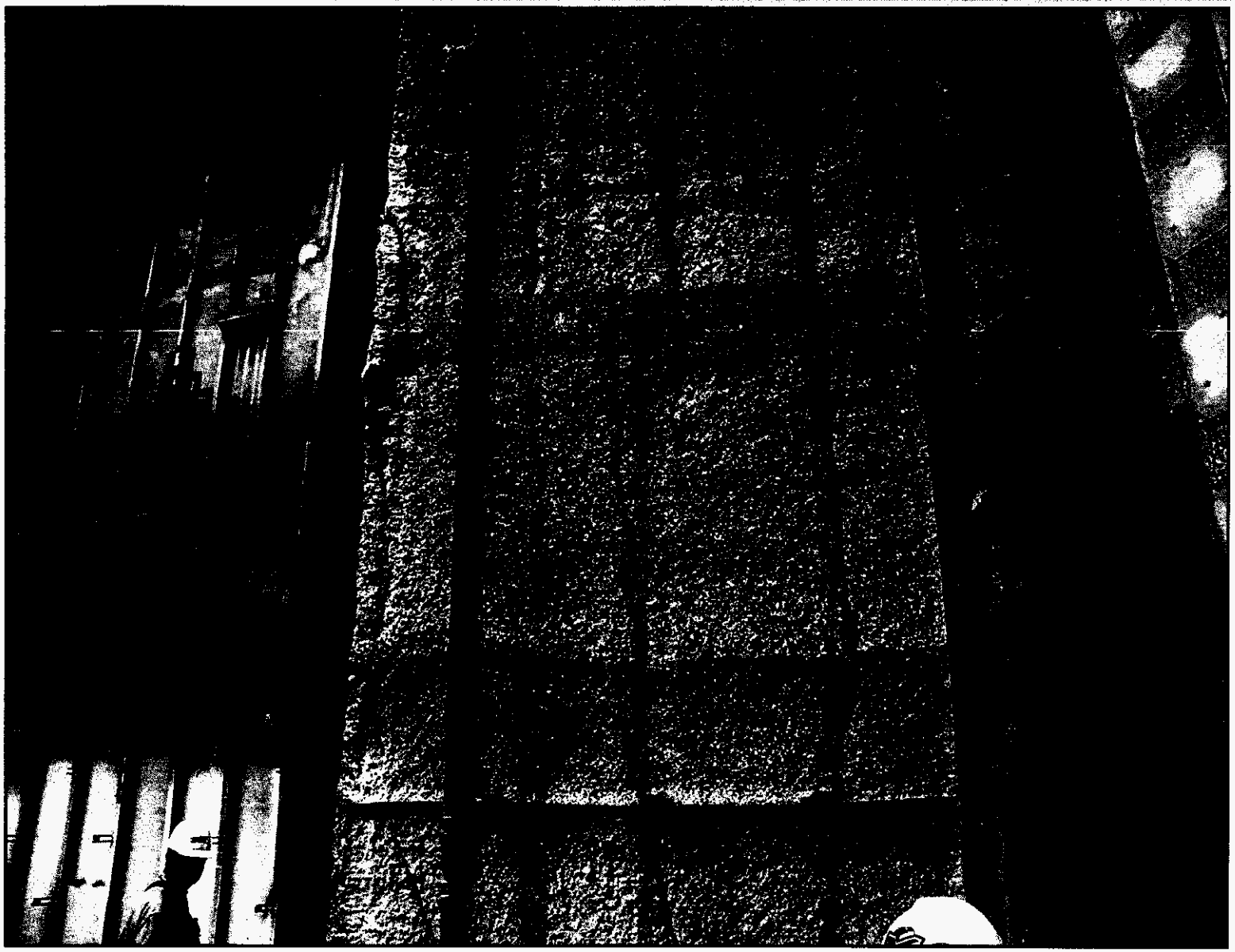


Bay 3 - 4 Horizontal & Vertical Cracks

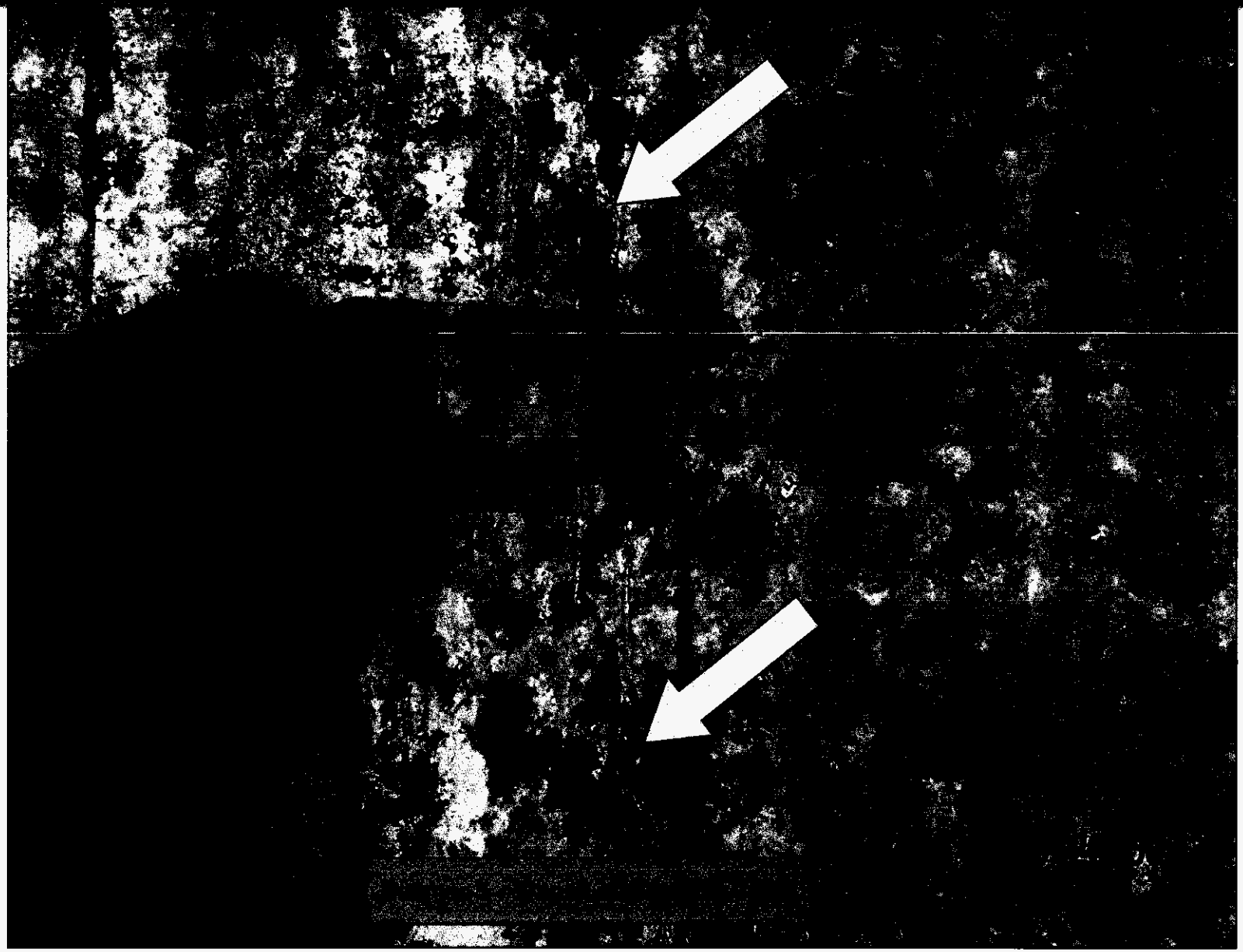
Observed During Hydro-Demolition Activities

Bay 3 - 4 Horizontal & Vertical Cracks

Remaining Vertical Cracks Requiring Repair



Cracks Outside Bay 3 – 4



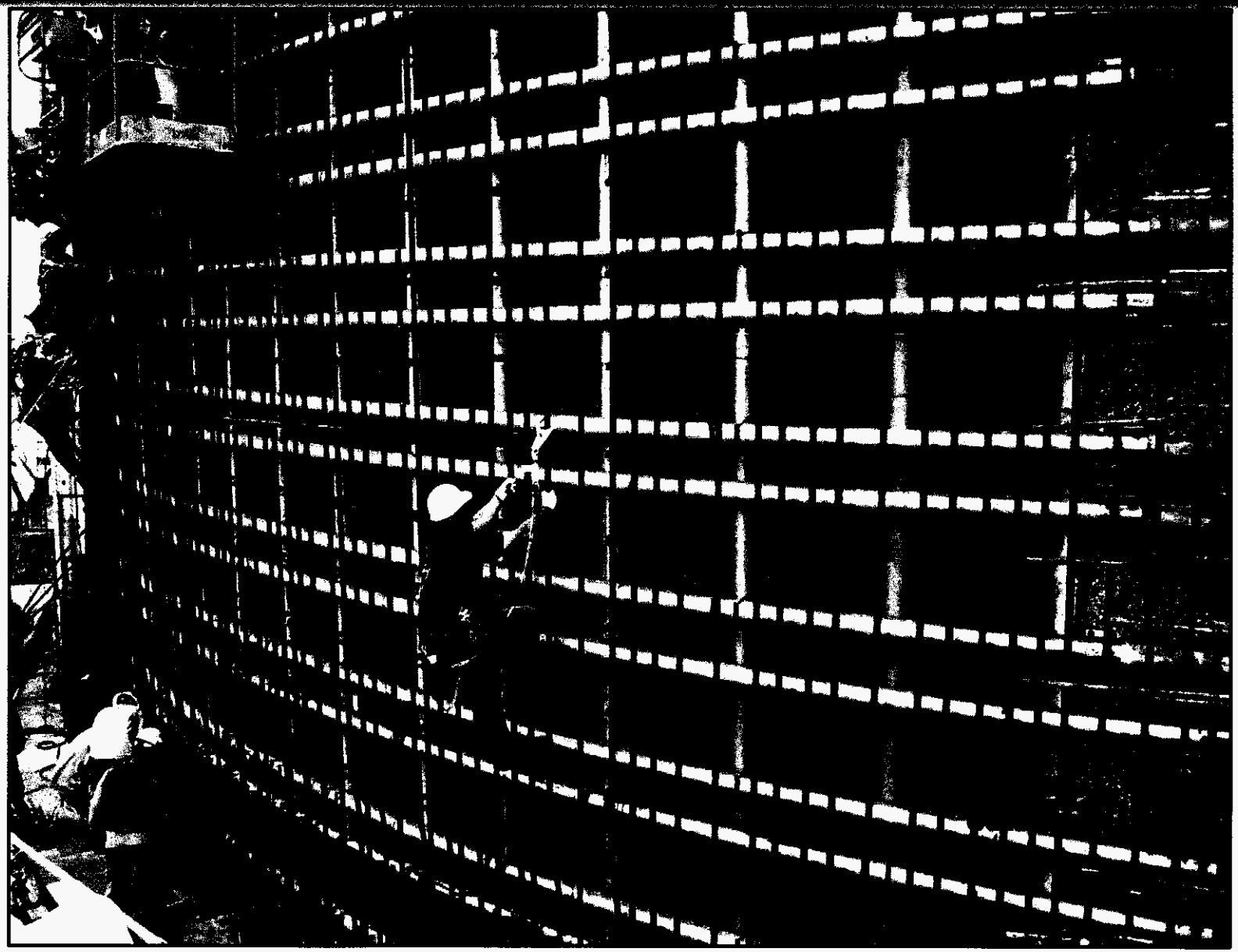
Vertical Crack Remediation

Installation of Safety Steel Required During Repair of Cracks

Vertical Crack Remediation

Hydro-Excavation Tool Excavating a Vertical Crack

Installation of Rebar and Tendon Sleeves



Concrete Placement

Tendon Re-Tensioning

First Phase in Progress

REMAINING SCHEDULE SUMMARY

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Current Return to Service Estimate

Remaining Activity	Estimated Duration
Complete Phase 1 of Re-Tensioning	**14 Days**
Complete Engineering for Final Phase of Re-tensioning	12 Days (Currently in parallel with Phase 1)
Complete Phase 2 Re-Tensioning	**27 Days** (Actual duration depends on uncertainties detailed in later slide)
Containment Testing	**16 Days**
Plant Start Up	**9 Days**

Note: All durations based on best information as of 01/21/11

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STATUS OF REMAINING ACTIVITIES

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Re-tensioning Scope and Sequence

- **Tendon Re-Tensioning**
  - 155 Horizontal
  - 64 Verticals that were fully de-tensioned
  - 80 Verticals will be reset to original tension

- **Utilizing "Partial" tensioning steps**
  - Horizontal tendons partially tensioned to 50% of final tension
  - Horizontal Passes 1, 3, 4 released are all 50% of final tension ("Partial")
  - Later passes will then fully tension to final tension
  - Tendons within a sequence step will be tensioned simultaneously in increments

- **11 Passes (4 Vertical and 7 Horizontal)**

- **Only First Phase (4 Passes) Currently Approved by Engineering**

Engineering for Final Phase of Re-Tensioning

Description of Engineering Model

- **Abaqus Visco-Elastic Fracture Energy Model Significantly Improved & More Complex from De-tensioning**
  - Model informed by root cause; calibrated to recreate SGR delamination
  - Model includes individual tendons, sleeves, liner and rebar
  - Model recreates entire "life" of containment
  - Material Property Assessment – new testing plus root cause results
  - Two Main Model Components: Global & Microscope

- **Global Model**
  - Entire containment; less detailed mesh; displacements and stresses
  - Approximately 250,000 elements / 5 million degrees of freedom
  - Element size in dome / cylinder cross-sections from 1.3 to 6.8 inches thick.
  - Global used to define stresses and displacements for entire building – sets boundary condition as input to microscope models
  - Can not model cracking

Engineering for Final Phase of Re-Tensioning
Description of Engineering Model (continued)

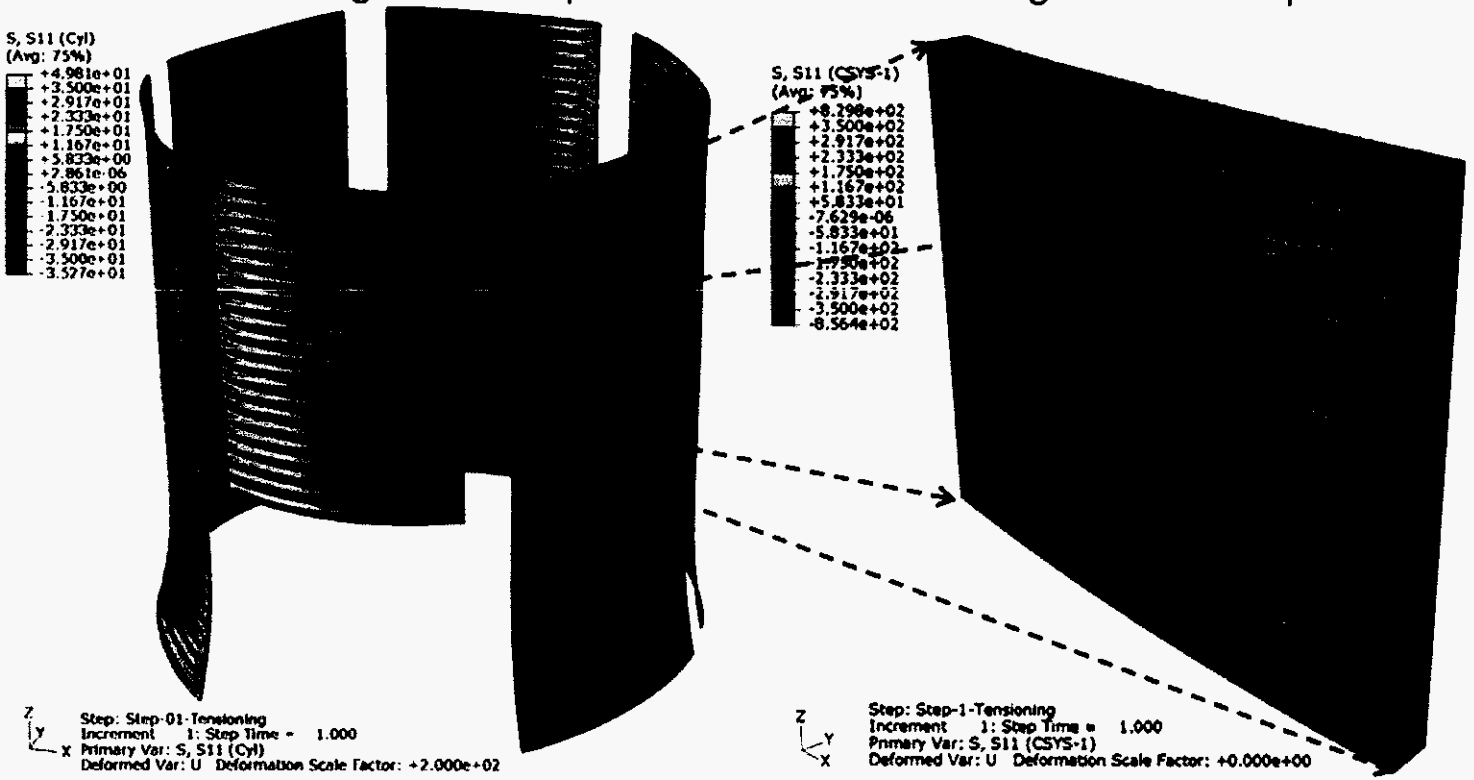
- **Microscope Model**
  - Covers 4 vertical and 6 hoop tendons (3 pairs); very detailed mesh; fracture energy and cracking
  - 1.3 million degrees of freedom
  - Mesh size of approx. 1 square inch (vs approx. 1 sq ft of Global)
  - The model includes the liner as a fully-coupled member

Engineering for Final Phase of Re-Tensioning

Global to Microscope Model

Stress Range -35 to 35 psi

Stress Range -350 to 350 psi



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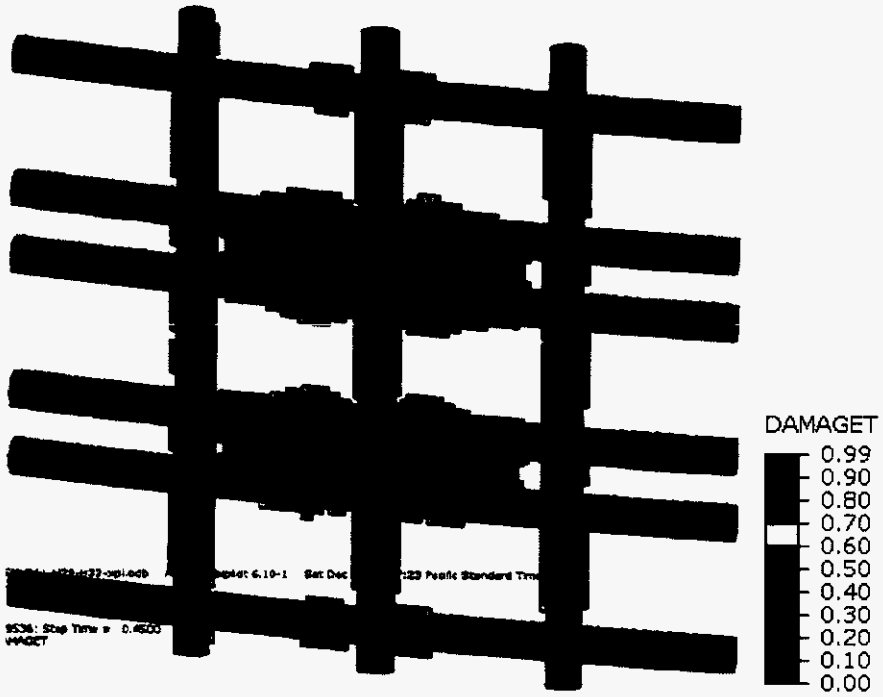
Engineering for Final Phase of Re-Tensioning
Example Microscope Model Result



Bay 61 Microscope Model - Pass 9 Start of Delamination

Figure B.9 Bay 61 H29-H32 Az 330, with creep recovery, almost through Pass 9. This is an example of an index 12 condition.

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Engineering for Final Phase of Re-Tensioning
Stress Mapping of Re-Tensioning

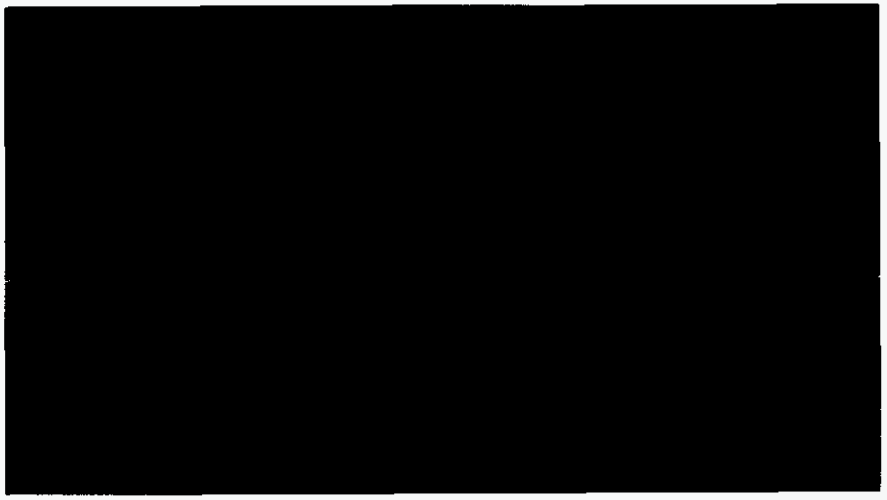


Figure 1.14 Radial component of stress after the same tendon partially (50%) re-tensioned.

Horizontal Tendon
Peak stress 597 psi
At 50% Re-tensioning

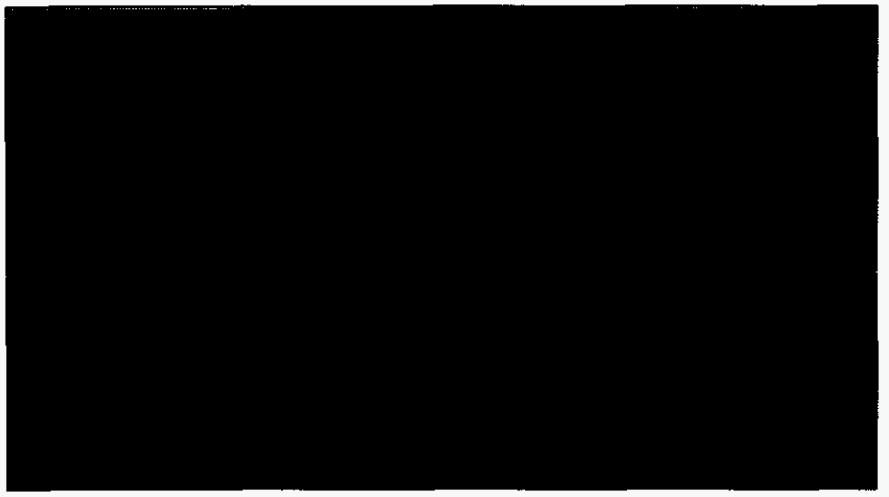


Figure 1.15 Radial component of stress after the same tendon is tensioned to 100% (full 74% GUTS).

Horizontal Tendon
Peak stress 950 psi
At 100% Re-tensioning

Re-tensioning Phase Monitoring

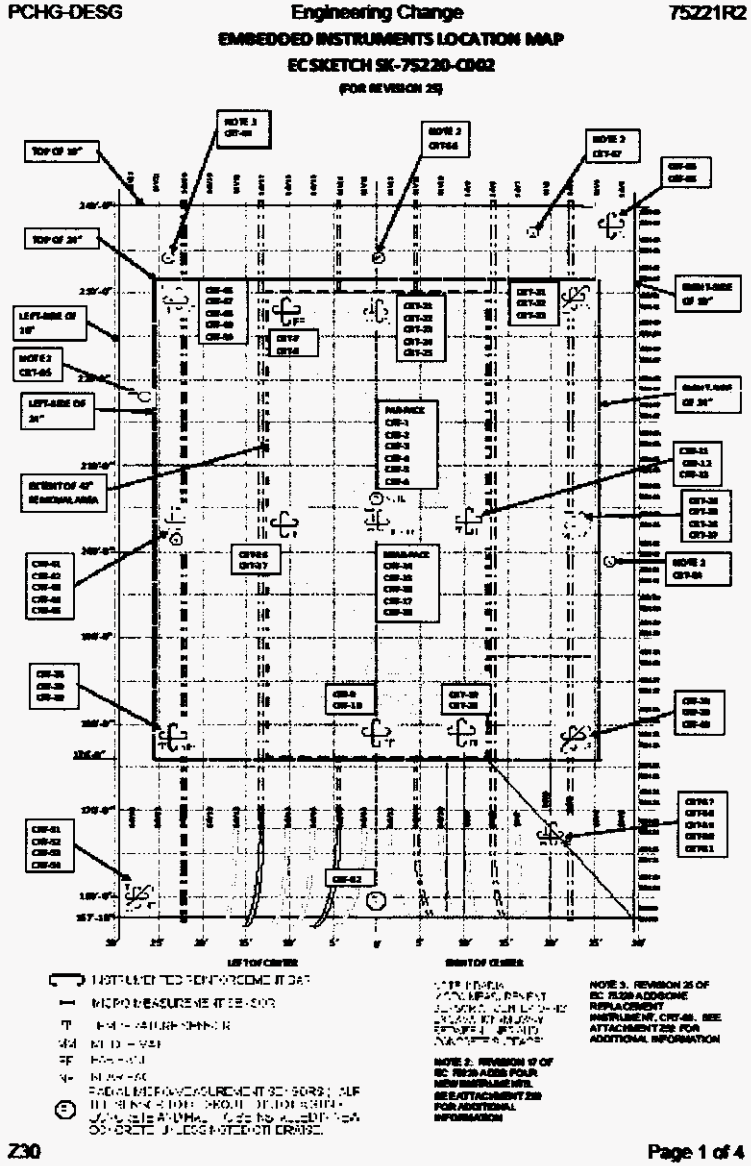
Validation of Response and Prevent Damage

- Strain Gages
- Acoustic Emissions
- Building Deformation Checks With Laser Scans

Re-tensioning Phase Monitoring

Strain Gages Monitoring Forces Through Wall

Strain Gage Locations In Repair Bay 3-4



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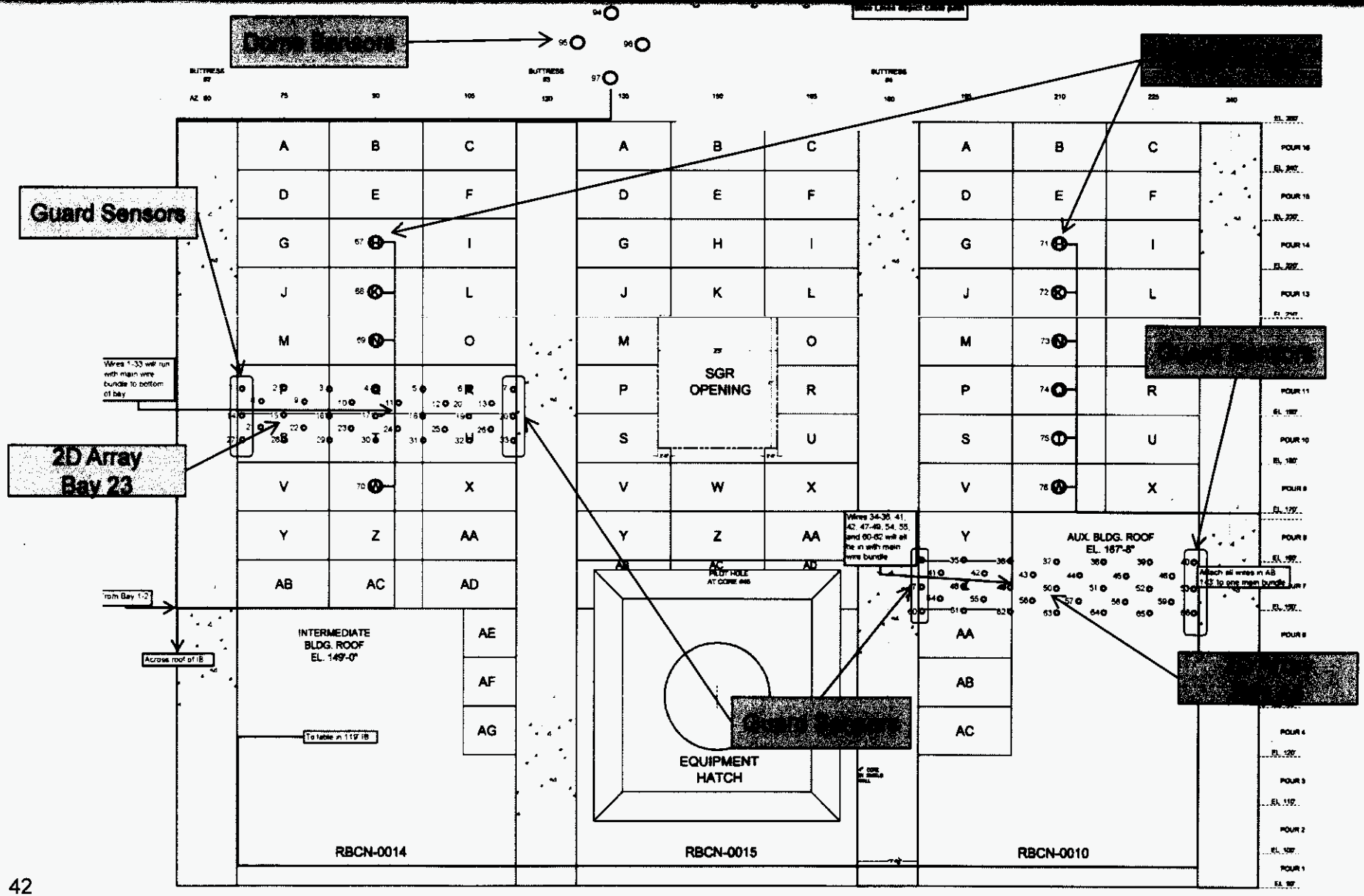
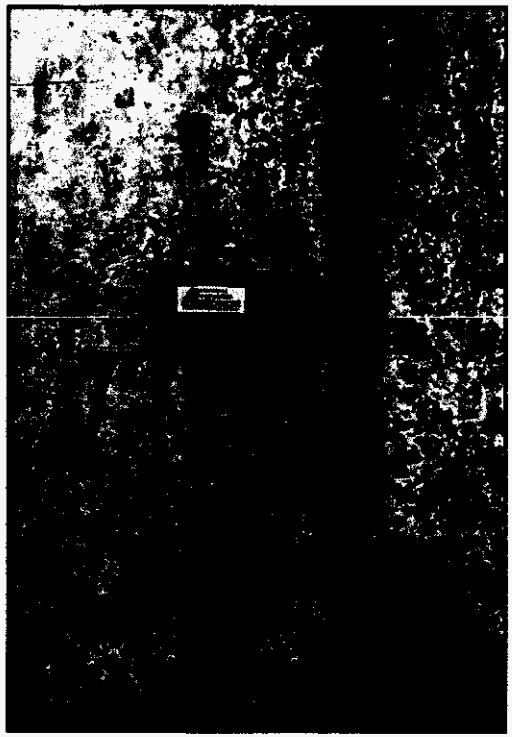
Re-tensioning Phase Monitoring

Acoustic Sensors Monitoring for Any Damage

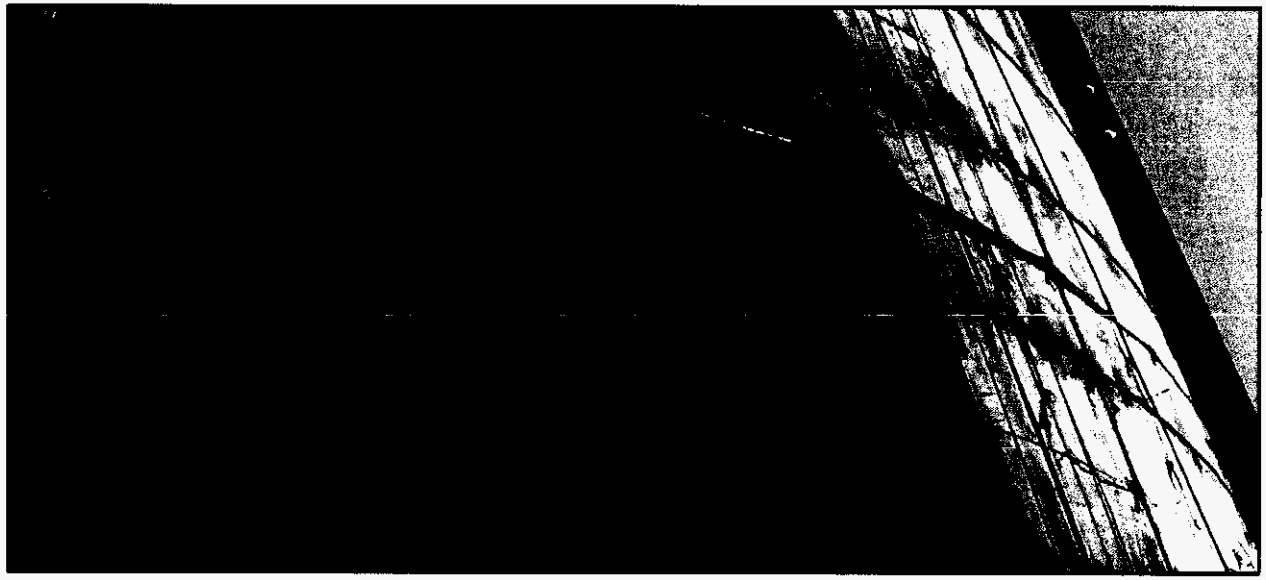


Re-tensioning Phase Monitoring

Acoustic Sensors Monitoring for Any Damage



Acoustic Monitoring Sensor



Panel 2-3 10 ft x 60 ft 2D Array

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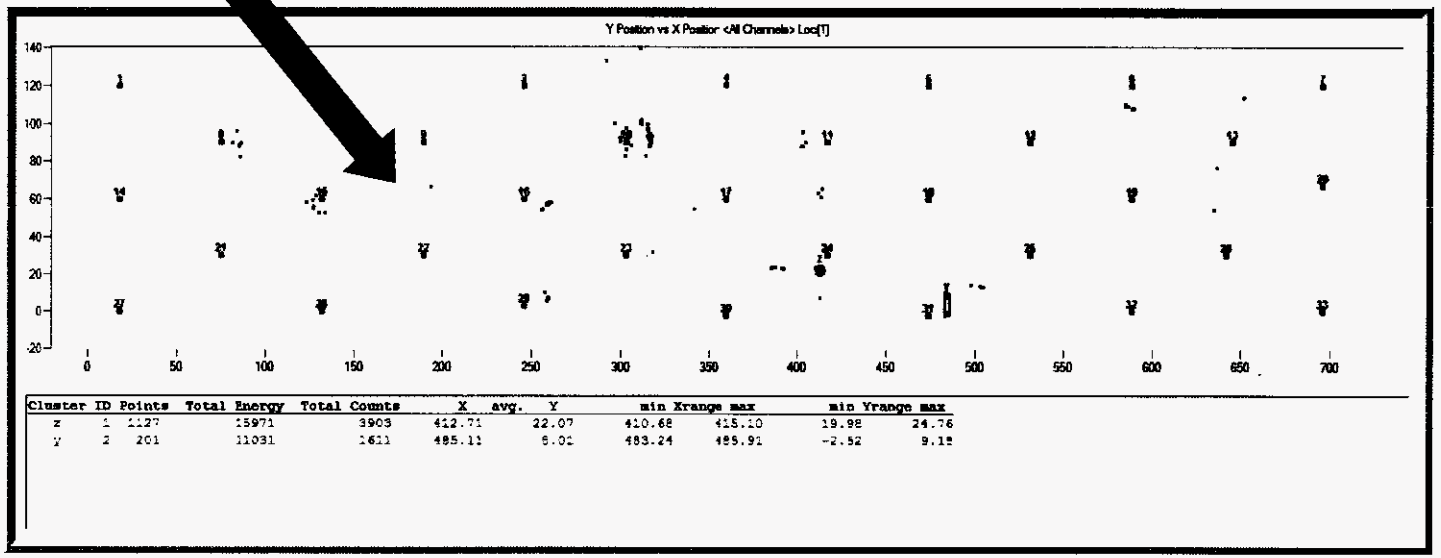
Re-tensioning Phase Monitoring

Acoustic Sensors Monitoring for Any Damage

Acoustic Monitoring
Data Acquisition System
2D Array Data Example



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Re-tensioning Phase Monitoring
Laser Scan Validation of Building Response

- **Deformation Checks With Laser Scans**
  - Laser scans technology from inside containment
  - Measures radial deformation of containment walls (liner) at specific intervals
  - Actual vs. predicted analytical model deformation compared
  - Engineering to review data
  - Use for potential uncertainty improvements for later passes

- **Contingencies Based on Monitoring, Include;**
  - Non Destructive Test - impulse response
  - Non Destructive Test - impact echo
  - Concrete cores with boroscopic examinations
  - Further engineering analysis/evaluation

Post Modification Testing
After Re-tensioning Prior to Pressure Test(s)

- **Impulse Response (IR) Testing**
  - Post re-tensioning IR testing in 5 bays required
  - All bays except the repair area bay 3-4
    - Not required based on comprehensive strain gages in bay 34
  - Compare to IR testing results from post de-tensioning testing
- **Visual Concrete Examination Repair Bay 3-4 and Other Repair Areas (e.g. core bore locations)**
- **Visual Steel Liner Examination at SGR Opening and Containment Instrumentation Attachment Locations**
- **Pre- Pressure Testing Concrete Crack Mapping**
- **Post Re-tensioning Laser Scan Measurements**

Post Modification Testing

Pressure Testing to Validate Function

- **Structural Integrity Test (SIT)**
  - Pressurizes building to 115% of design pressure (63.5 psig)
  - Displacements monitored at specific pressure increments
  - Crack mapping at peak pressure
  - Strain gage monitoring
- **After Structural Integrity Test (SIT)**
  - Crack mapping
  - Visual concrete examination repaired bay 3-4
  - Visual steel liner examination at SGR opening and SIT instrumentation attachment locations
  - Laser scan validation of building dimensions
- **Integrated Leak Rate Testing (ILRT)**
  - Performs validation of leak boundary at design pressure

Operational Start-Up Activities

- **Equipment Tested to Extent Possible**
  - Extended power up rate equipment
  - Steam plant components
- **Start Up Readiness Reviews**
  - Institute of Nuclear Power Operations special assistance
  - Nuclear Generation Group fleet assessment
- **Operational Crew Certification Examination**
- **Technical Staff Training Reviews/ Refreshers**
- **Start Up Testing Integrated into Schedule and Procedures**

Potential Schedule Impacts

- **Re-tensioning Analysis not Complete Prior to Completion of Phase 1**
- **Containment Monitoring Equipment Alerts During Re-Tensioning**
- **Routine Construction Delays**
  - **Equipment failures**
  - **Emergent work**
  - **Weather Delays**
- **NRC Reviews**
- **Identification of Start Up Testing Equipment Issues**

Next Steps After Return to Service - John Burnett

- Calculate Final Replacement Power Costs
- Collect and Process Remaining Documents for Production Room
- Comprehensive Briefing and Q&A to FPSC and Parties
- Proceed with Complete Case Filings

Summary & Questions

Progress Energy