Dorothy Menasco

From:	saporito3@gmail.com on behalf of Thomas Saporito [thomas@saprodani-associates.com]		
Sent:	Saturday, July 16, 2011 5:45 PM		
To:	Filings@psc.state.fl.us		
Cc:	KELLY.JR		
Subject:	RESEND-Petition-Crystal River Nuclear Plant-Docket No. 100437-EI		
Attachments: 2011.07.16 FPSC Petition Crystal River.pdf			

Clerk for the Florida Public Service Commission:

This is a RESEND of the prior petition because the first send was not properly scanned. Please replace the first send with this send accordingly.

Please find the attached "Petition to Deny Progress Energy Florida Costs for Repair of Crystal River Unit-3 Nuclear Plant" for filing with the Commission in Docket No. 100437-EI.

• The full name, address, telephone number and email address of the person responsible for the electronic filing is:

Thomas Saporito, Senior Consulting Associate Email: <u>thomas@saprodani-associates.com</u> Web: <u>http://Saprodani-Associates.com</u>

Post Office Box 8413, Jupiter, Florida 33468 Phone: (561) 972-8363 Fax: (561) 972-8363 Saprodani-Associates - Advocate/GreenPeace USA

- The docket number and title if filed in an existing docket is: Docket No. 100437-EI
- The name of the party on whose behalf the document is filed is: Saprodani Associates and Thomas Saporito.
- The total number of pages in each attached document is: 84-pages
- A brief but complete description of each attached document is as follows:
 - Petition to Deny Progress Energy Florida Costs for Repair of Crystal River Unit-3 Nuclear Plant
 - Enclosure-One: December 9, 2009 NRC Enforcement Petition in connection with the Crystal River Nuclear Plant
 - Enclosure-Two: January 7, 2010 NRC meeting transcripts in connection with the Crystal River Nuclear Plant
 - Enclosure-Three: November 20, 2009 Progress Energy Crystal River Unit #3 Containment Delamination Update
 - U.S.NRC Proposed Director's Decision date of December 2, 2012 in connection with NRC enforcement petition filed on December 9, 2009 in connection with the Crystal River Nuclear Plant

Should you have any questions regarding the foregoing, please do not hesitate to contact meat NUMBER-DATE your convenience.

Kind regards, 7/18/2011

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parties Lis

FPSC-COMMISSION CLERK

Thomas Saporito, Senior Consulting Associate Email: <u>thomas@saprodani-associates.com</u> Web: <u>http://Saprodani-Associates.com</u> Post Office Box 8413, Jupiter, Florida 33468 Phone: (561) 972-8363 Fax: (561) 972-8363 Saprodani-Associates - Advocate/GreenPeace USA

Saprodani Associates

In the Matter of:

Saprodani Associates and Thomas Saporito **DOCKET: 100437-EI**

DATE: 16 JULY 2011

v.

Progress Energy Florida and Crystal River Unit-3

PETITION TO DENY PROGRESS ENERGY FLORIDA COSTS FOR REPAIR OF CRYSTAL RIVER UNIT-3 NUCLEAR PLANT

NOW COMES, Saprodani Associates, by and through and with, Thomas Saporito, Senior Consultant, and submits a "Petition to Deny Progress Energy Florida Costs for Repair of Crystal River Unit-3 Nuclear Plant" (Petition), in accordance with the rules of practice and procedure before the Florida Public Service Commission (FPSC), and states as follows in support of the Petition:

BACKGROUND

On November 20, 2009, Progress Energy Florida (PEF) advised the U.S. Nuclear Regulatory Commission (NRC) about the discovery of a delamination event at the Crystal River Unit-3 (CR3) nuclear power plant containment building. PEF's presentation to the NRC included a Power-Point hand-out. *See*, Enclosure-3. PEF had assembled professional engineers to explain the circumstances of the delamination event to the NRC and to explain the details about how PEF intended to investigate the event to determine the "root-cause" of the event.

On December 5th, 2009, the undersigned filed an enforcement petition under 10 C.F.R. §2.206 with the NRC specifically requesting that the agency issue a Confirmatory Order requiring the licensee (Progress Energy Florida or "PEF") to: (1) physically <u>remove the outer</u> <u>ten-inches of concrete</u> surrounding the CRN containment building from the top of the containment building to the bottom of the containment building and encompassing 360-degrees around the entire containment building; and (2) test samples of the concrete removed from the CRN containment building for composition and compare the test results to a sample of concrete from a similarly designed facility like the Florida Power and Light Company (FPL), Turkey Point Nuclear Plant (TPN); and (3) maintain the CRN in cold-shutdown mode until such time as the licensee can demonstrate full compliance with its NRC operating license for CRN within the safety margins delineated in the licensee's Final Safety Analysis Report (FSAR) and within the CRN cite [sic] specific technical specifications; and (4) provide the public with an opportunity to intervene at a public hearing before the NRC Atomic Safety and Licensing Board (ALSB) to challenge any certification made by the licensee to the NRC that it has re-established full

PSC-COMMISSION CLERP

DOCUMENT NUMBER - DATE

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compliance with 10 C.F.R. 50 and the safety margins delineated in its FSAR and technical specifications. *See*, Enclosure-One at 2.

As a Basis and Justification for the enforcement action sought in the NRC enforcement petition, the Petitioner stated that:

- 1. During a maintenance activity performed under the direction and authorization of the licensee to cut an opening in the CRN containment building for access to replace steam generator units, the CRN containment building was discovered to have one or more separations between the poured concrete perimeter wall of the containment building and the horizontally installed tendons placed from top to bottom around the containment building within 10-inches of the outer-most part of the 42-inch thick concrete perimeter wall of the containment building. To date, the licensee has not been able to determine the "root-cause" of this structural failure.
- 2. The licensee is currently engaged in conducting Impulse Testing of the remaining CRN containment building perimeter wall to determine if additional separations exist. However, the licensee's use of Impulse Testing is not sufficient to make such a determination. Notably, Impact Echo testing is used world-wide to determine concrete cracking and failures on public bridges and the like, but even this type of testing is not sufficient to fully validate the entirety of the CRN containment building. Furthermore, even the use of destructive testing to make visual inspections of small areas of the CRN containment building is not sufficient to qualify the entirety of the containment building.
- 3. Removal of ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around would effectively expose the entirety of the surrounding 5 1/4" tendons and allow visual inspection of the inner-side of the tendons to make certain that no separation between the tendons and the inner-part of the concrete wall exist.
- 4. Removal of ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around would ensure for the best possible adhesion of a new concrete pour to the existing inner concrete perimeter wall of the containment building.
- 5. The licensee's FSAR requires that the CRN containment building be comprised of a monolithic concrete perimeter wall. The only way the licensee can fully achieve compliance with its FSAR is to remove ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around for proper visual inspect an [sic] repair activities.

See, Enclosure-One at 2-3.

On January 7, 2010, the NRC held a public teleconference call meeting with Thomas Saporito (Saporito) and representatives of PEF to discuss the enforcement petition before the NRC Petition Review Board (PRB) members. *See*, Enclosure-Two. During this meeting, Saporito advised the NRC and PEF that there appeared to be a "design" flaw in the construction of the CR3 containment building – where the placement of the 5 1/4-inch tendons was too close to the outside perimeter of the containment wall; and was likely the cause of the delamination event when the tendons were detensioned. *See*, Enclosure-Two at 24-25; and Enclosure-Three at 16.

The NRC has established a "Proposed Director's Decision" release date for the enforcement petition for December 2, 2012. *See*, Enclosure-Four.

Since the filing of the enforcement petition, PEF failed to effectively repair the CR3 containment building, and, in fact, discovered at least one more delamination in the containment building which will prevent the NRC from allowing PEF to restart the CR3 nuclear reactor.

On July 14, 2011, PEF proffered to the FPSC that further repair costs related to the CR3 containment building would be approximately 1.3-BILLION dollars – and that it was unsure as to whether its insurance carrier would pay for the repair costs. PEF further proffered to the FPSC that repairing the containment building was the best option to save ratepayers money – expecting to bring the plant back online sometime in 2014. PEF's attorney, Alex Glenn, stated, "We think the schedule that is laid out here is doable,".

DISCUSSION

The issue before the FPSC and central to this docket is <u>not</u> whether PEF's schedule to repair the CR3 containment building is doable – but rather – whether PEF's intent to repair the CR3 containment building is a "**prudent**" action in the <u>best interest of the ratepayers</u>.

For the reasons delineated below, PEF's intent to repair the CR3 containment building is **NOT** a prudent action; and is **NOT** in the best interest of the ratepayers:

First, PEF was timely advised as of December 2009, through the filing of the NRC enforcement petition, that PEF's intended testing program and repair plan for the CR3 containment building was not sufficient and would not insure that further delamination events would not occur, or that other delaminations did not exist. None-the-less, PEF expended millions of dollars in a failed attempt to repair the CR3 containment building – which resulted in yet another delamination event – which calls into question (1) the integrity of the entire CR3 containment building; and (2) whether the CR3 containment building has an inherent "design" flaw in the placement of 5 1/4-inch tendons within 10-inches of the perimeter of the containment

Page 3 of 5

building structure – thereby causing unintended stresses on the containment wall concrete – resulting in delamination events – and preventing NRC certification and authorization for the restart of the CR3 nuclear reactor.

Next, PEF's root-cause investigation made a determination that the original concrete pour for the CR3 containment building apparently used a questionable or substandard aggregate which appears to have been a contributing factor in the original delamination event. None-the-less, PEF ignored the suggestion made via the NRC enforcement petition and conference call to remove and replace 10-inches of concrete from the entire exterior of the CR3 containment building – and make a single uniform concrete pour using a proper concrete aggregate.

Next, PEF advised the NRC (in connection with the first delamination event) that PEF intended to over-pressurized the CR3 containment building after repairs had been made to prove the integrity of the containment building. At the time, the undersigned advised both the NRC and PEF against over-pressurizing the containment building – as such an event – could actually cause further structural damage to the containment building – and that such testing was not required. None-the-less, it is believed that PEF performed an over-pressurization of the containment building after the initial repairs had been completed to the CR3 containment building.

Next, PEF cannot affirm to the FPSC that the entirety of the concrete structure of the CR3 containment building is **NOT** defective – as to whether – the concrete aggregate used in the initial pour of concrete was proper in these circumstances. Thus, even if PEF were to replace 10-inches of concrete for the entirety of the outside perimeter of the containment building from top to bottom and 360-degrees around, PEF can not guarantee that further delamination events would not occur within the **"original"** concrete inside the replacement concrete of the 42-inch thick perimeter wall.

Next, PEF's piece-mill approach to replacing sections of concrete within 10-inches of the outside perimeter of the CR3 containment building is a flawed approach – which is likely to result in further delamination events caused by the tensile strength differences created from the "new" concrete pour with a different concrete aggregate; and the "original" concrete pour which apparently utilized an improper concrete aggregate. To the extent that there would exist a tensile strength differential between the original concrete pour and the <u>sectionally poured</u> new concrete, it would appear that PEF would be in violation of their FSAR, site technical specifications, and NRC operating license – and that the NRC would **NOT** allow PEF to restart the CR3 nuclear reactor.

Finally, the ratepayers should **NOT** have to bear and suffer the financial consequences of PEF's failed business decisions in the repair of the CR3 containment building - where the ratepayers had no decision-making authority to intervene in those decisions. To the extent that PEF would request that the FPSC allow cost-recovery for replacement fuel costs – in connection with the CR3 containment repair activities to date, the FPSC should **DENY** any such request.

Page 4 of 5

Clearly, PEF could have <u>taken remedial actions to reduce the amount of replacement fuel</u> <u>costs to its customers</u> by providing financial incentives for its customers to replace their existing electric hot water heaters with "on-demand" electric water heaters. This single initiative would have reduced each PEF ratepayer's electric bill by at least 50% or more – offsetting any and all replacement fuel costs asserted by PEF in these circumstances. *See, <u>http://saprodani-</u> associates.com* – menu selection "On-Demand Hot Water Heaters".

CONCLUSION

PEF has not, and <u>cannot</u>, affirm to the FPSC that its intent and plan to repair the CR3 containment building is sound and, more importantly, a "**prudent**" decision in the <u>best interest</u> of PEF's ratepayers in these circumstances, where (1) the NRC's decision about whether or not to allow PEF to restart the CR3 nuclear reactor has not been reached; (2) PEF's repair plan for the CR3 containment building failed the first time – and will likely fail again; (3) the CR3 containment building has an inherent design flaw in the placement of 5 1/4-inch tendons within 10-inches of the outside perimeter of the containment building structure; and (4) conservation of electricity and the installation and use of on-demand electric water heaters can <u>entirely replace</u> the electric power provided by the CR3 nuclear power plant.

FOR ALL THE ABOVE STATED REASONS, PEF has not demonstrated that the repair of the CR3 containment building structure is a "**prudent**" course of action in the <u>best interest of</u> <u>PEF's ratepayers</u> – and for this reason standing alone – the FPSC must deny PEF's request(s) under the above-captioned docket as a matter of law.

Respectfully submitted,

Thomas Saporito

Senior Consultant Saprodani Associates Post Office Box 8413 Jupiter, Florida 33468 Phone: (561) 972-8363 thomas@saprodani-associates.com

cc: U.S. Nuclear Regulatory Commission National and Local Media

Page 5 of 5

Enclosure-One

DOCUMENT NUMBER-DATE 04954 JUL 18 = FPSC-COMMISSION CLERK

EDO Principal Correspondence Control

FROM :

DUE: 01/06/10

Thomas Saporito Jupiter, Florida

. .

TO:

Bill Borchardt

FOR SIGNATURE OF :

** GRN * * CRC NO:

ROUTING:

Borchardt

SBurns/JGray

LREYES, RII

Virgilio Mallett Ash Mamish

EDO CONTROL: G20090690

FINAL REPLY:

DOC DT: 12/05/09

Leeds, NRR

DESC:

2.206 - Enforcement Action Against the Progress Energy Company, Crystal River Nuclear Plant [EDATS: OEDO-2009-0758]

DATE: 12/08/09

ASSIGNED TO: CONTACT:

> NRR Leeds

SPECIAL INSTRUCTIONS OR REMARKS:

FPSC-COMMISSION-CLERK

DOCUMENT NUMBER-DATE 04954 JUL 18

11

TEMPLATE EDO-001

E-RIDS EDO-01



EDATS Number: OEDO-2009-0758

General Information

Assigned To: NRR

Other Assignees:

Subject: 2.206 - Enforcement Action Against the Progress Energy Company, Crystal River Nuclear Plant **Description:**

CC Routing: NONE ADAMS Accession Numbers - Incoming: NONE

Cross Reference Number: G20090690

Response/Package: NONE

Staff Initiated: NO **Recurring Item: NO**

Agency Lesson Learned: NO

OEDO Monthly Report Item: NO

Process Information

File Routing: EDATS

Other Information

Related Task:

Action Type: 2.206 Review

Signature Level: NRR **OEDO Concurrence:** NO **OCM Concurrence: NO OCA Concurrence: NO Special Instructions:**

Document Information

Originator Name: Thomas Saporito Originating Organization: Citizens Addressee: Bill Borchardt Incoming Task Received: Letter

Date of Incoming: 12/5/2009 Document Received by OEDO Date: 12/7/2009 Date Response Requested by Originator: NONE

Priority: Medium Sensitivity: None Urgency: NO

OEDO Due Date: 1/6/2010

SECY Due Date: NONE

Source: OEDO

From the Desk of Thomas Saporito

Post Office Box 8413, Jupiter, Florida 33468-8413 Voice: (561) 972-8363 Fax: (561) 952-4810 Email Address: <u>saporito3@gmail.com</u>

05 DEC 2009

Bill Borchard Executive Director for Operations U.S. Nuclear Regulatory Commission Washington, D.C. 20555

In re: Request for Enforcement Action Under 10 C.F.R. 2.206 Against the Progress Energy Company, Crystal River Nuclear Plant

Dear Mr. Borchard:

Enclosed herewith, please the undersigned's petition under 10 C.F.R. 2.206 requesting that the U.S. Nuclear Regulatory Commission (NRC) take enforcement action against its licensee Progress Energy (PE or licensee), Crystal River Nuclear Plant.

For the reasons stated in the petition, the NRC should grant the petition and take the requested enforcement action against PEC to ensure for the protection of public health and safety.

Respectfully submitted,

Thomas Saporito

A copy of this document was provided to:

Hon. Barack Obama President of the United States The White House 1600 Pennsylvania Ave., N.W. Washington, D.C. 20500

William D. Johnson, Chairman President, Chief Executive Officer Progress Energy Post Office Box 1551 Raleigh, North Carolina 27602

BEFORE THE U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF THE EXECUTIVE DIRECTOR

In the matter of:

Progress Energy,

Date: 05 DEC 2009

Crystal River Nuclear Plant, Unit-3

Docket Number: 050-00302

REQUEST FOR ENFORCEMENT ACTION UNDER 10 C.F.R. 2.206 AGAINST PROGRESS ENERGY, CRYSTAL RIVER NUCLEAR PLANT UNIT-3

NOW COMES, Thomas Saporito, ("Saporito") (hereinafter "Petitioner") and submits a petition under 10 C.F.R. 2.206 seeking enforcement action and a confirmatory order by the U.S. Nuclear Regulatory Commission (NRC) against its licensee Progress Energy (PE or licensee) regarding a violation of NRC regulations and requirements under 10 C.F.R. Part 50 at the licensee's Crystal River Nuclear Plant Unit-3 (CRN) in the structural failure of the CRN containment building.

STANDARD OF REVIEW

A. Criteria for Reviewing Petitions Under 10 C.F.R. 2.206

The staff will review a petition under the requirements of 10 C.F.R. 2.206 if the request meets all of the following criteria:

- The petition contains a request for enforcement-related action such as issuing an order modifying, suspending, or revoking a license, issuing a notice of violation, with or without a proposed civil penalty, etc.
- The facts that constitute the basis for taking the particular action are specified. The petitioner must provide some element of support beyond the bare assertion. The supporting facts must be credible and sufficient to warrant further inquiry.
- There is no NRC proceeding available in which the petitioner is or could be a party and through which petitioner's concerns could be addressed. If there is a proceeding available, for example, if a petitioner raises an issue that he or she has raised or could raise in an ongoing licensing proceeding, the staff will inform the petitioner of the ongoing proceeding and will not treat the request under 10 C.F.R. 2.206.

B. Criteria for Rejecting Petitions Under 10 C.F.R. 2.206

- The incoming correspondence does not ask for an enforcement-related action or fails to provide sufficient facts to support the petition but simply alleges wrongdoing, violations of NRC regulations, or existence of safety concerns. The request cannot be simply a general statement of opposition to nuclear power or a general assertion without supporting facts (e.g., the quality assurance at the facility is inadequate). These assertions will be treated as routine correspondence or as allegations that will be referred for appropriate action in accordance with MD 8.8, "Management of Allegations".
- The petitioner raises issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to

10 C.F.R. 2.206 Petition Requesting Enforcement Action Against Progress Energy, Crystal River Nuclear Plant

Page 2 of 3

the facility in question. This would include requests to reconsider or reopen a previous enforcement action (including a decision not to initiate an enforcement action) or a director's decision. These requests will not be treated as a 2.206 petition unless they present significant new information.

- The request is to deny a license application or amendment. This type of request should initially be addressed in the context of the relevant licensing action, not under 10 C.F.R. 2.206.
- The request addresses deficiencies within existing NRC rules. This type of request should be addressed as a petition for rulemaking.

See, Volume 8, Licensee Oversight Programs, Review Process for 10 C.F.R. Petitions, Handbook 8.11 Part III.

SPECIFIC REQUEST FOR NRC ENFORCEMENT ACTION

 Petitioner hereby requests that the NRC take enforcement action against the licensee and issue a Confirmatory Order requiring that the licensee: (1) physically <u>remove the outer ten-inches of</u> <u>concrete</u> surrounding the CRN containment building from the top of the containment building to the bottom of the containment building and encompassing 360-degrees around the entire containment building; and (2) test samples of the concrete removed from the CRN containment building for composition and compare the test results to a sample of concrete from a similarly designed facility like the Florida Power and Light Company (FPL), Turkey Point Nuclear Plant (TPN); and (3) maintain the CRN in cold-shutdown mode until such time as the licensee can demonstrate full compliance with its NRC operating license for CRN within the safety margins delineated in the licensee's Final Safety Analysis Report (FSAR) and within the CRN cite specific technical specifications; and (4) provide the public with an opportunity to intervene at a public hearing before the NRC Atomic Safety and Licensing Board (ASLB) to challenge any certification made by the licensee to the NRC that it has reestablished full compliance with 10 C.F.R. 50 and the safety margins delineated in its FSAR and technical specifications.

BASIS AND JUSTIFICATION

- 1. During a maintenance activity performed under the direction and authorization of the licensee to cut an opening in the CRN containment building for access to replace steam generator units, the CRN containment building was discovered to have one or more separations between the poured concrete perimeter wall of the containment building and the horizontally installed tendons placed from top to bottom around the containment building within 10-inches of the outer-most part of the 42-inch thick concrete perimeter wall of the containment building. To date, the licensee has not been able to determine the "root-cause" of this structural failure.
- 2. The licensee is currently engaged in conducting Impulse Testing of the remaining CRN containment building perimeter wall to determine if additional separations exist. However, the licensee's use of Impulse Testing is not sufficient to make such a determination. Notably, Impact Echo testing is used world-wide to determine concrete cracking and failures on public bridges and the like, but even this type of testing is not sufficient to fully validate the entirety of the CRN containment building. Furthermore, even the use of destructive testing to make visual inspections of small areas of the CRN containment building is not sufficient to qualify the entirety of the containment building.
- 3. Removal of ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around would effectively expose the entirety of the

10 C.F.R. 2.206 Petition Requesting Enforcement Action Against Progress Energy, Crystal River Nuclear Plant

Page 3 of 3

surrounding 5 ¼" tendons and allow visual inspection of the inner-side of the tendons to make certain that no separation between the tendons and the inner-part of the concrete wall exist.

- 4. Removal of ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around would ensure for the best possible adhesion of a new concrete pour to the existing inner concrete perimeter wall of the containment building.
- 5. The licensee's FSAR requires that the CRN containment building be comprised of a monolithic concrete perimeter wall. The only way the licensee can fully achieve compliance with its FSAR is to remove ten-inches of concrete from the outer-part of the 42-inch containment building wall from top to bottom and 360-degrees around for proper visual inspect an repair activities.

CONCLUSION

FOR ALL THE ABOVE STATED REASONS, the NRC staff should grant the 10 C.F.R. 2.206 petition submitted by the Petitioner in the interest of protecting public health and safety regarding the licensee's CRN failed containment building and the licensee's associated inspection and repair activities.

Respectively submitted,

Thomas Saporito

Enclosure-Two

DOCUMENT NUMBER-DATE 04954 JUL 18 = FPSC-COMMISSION CLERK

Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Crystal River Unit 3 2.206 Petition

Docket Number: (n/a)

Location: (telephone conference)

Date:

Thursday, January 7, 2010

Work Order No.: NRC-018

Pages 1-32

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> DOCUMENT NUMBER-DATE 04954 JUL 18 = FPSC-COMMISSION CLERK

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ı	UNITED STATES OF AMERICA		
2	+ + + +		
3	NUCLEAR REGULATORY COMMISSION		
4	+ + + + +		
5	THOMAS SAPORITO 10 CFR 2.206 PETITION FOR	२	
6	CRYSTAL RIVER UNIT 3		
7	+ + + + +		
8	TELECONFERENCE		
9	+ + + + +		
10	THURSDAY		
11	JANUARY 7, 2010		
12	+ + + + +		
13	The teleconference convened at		
14	10:30 a.m., Thomas Blount, Petition Review Boar	d	
15	Chair, presiding.		
16	NRC STAFF PRESENT:		
17	THOMAS BLOUNT, NRR/ADRO/DPR, Petition Review Bo	ard	
18	Chair		
19	THOMAS BOYCE, NRR/ADRO/DORL/LP[L2-2]		
20	RICH CHOU, Region II		
21	MICHAEL CLARK, OGC/GCHEA/AGCMLE		
22	BOB CARRION, Region II		R-D/
23	FARHAD FARZAM, NRR/DE/EMCB		
24	MARK FRANKE, Region II		951
25	DAVID HARDAGE, Region II		0 4
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FPSC-COMMISSION CLERK

	2
l	LOUIS LAKE, Region II
2	TANYA MENSAH, NRR/ADRO/PSP[B], Petition Review Board
3	Coordinator
4	BRENDA MOZAFARI, NRR/ADRO/DORL/LP[L2-2]
5	ALI REZAI, NRR/DCI/CPNB
6	STACEY ROSENBERG, NRR/ADRO/DPR/ PSP[B]
7	FARIDEH SABA, NRR/ADRO/DORL/LP, Crystal River Unit 3
8	Project Manager
9	MARVIN SYKES, Region II
10	GEORGE THOMAS, Region II
11	
12	PETITIONER:
13	THOMAS SAPORITO
14	
15	PROGRESS ENERGY REPRESENTATIVES PRESENT:
16	BRIAN McCABE
17	JOHN FRANKE
18	GARRY MILLER
19	JOHN O'NEILL
20	
21	
22	
23	
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3 1 P-R-O-C-E-E-D-I-N-G-S 2 (10:34 a.m.) 3 MS. SABA: Good morning. I would like to 4 welcome -- to thank everybody for attending this 5 meeting. 6 My name is Farideh Saba, and I am the 7 Crystal River Nuclear Generating Plant Unit 3 Project 8 Manager. 9 We are here today to allow the Petitioner, 10 Mr. Thomas Saporito, to address the Petition Review 11 Board regarding the 2.206 petition dated December 5, 2009. 12 13 I am the Petition Manager for this 14 The Petition Review Board Chairman is Tom petition. 15 Blount. As part of the Petition Review Board, or PRB, 16 review of this petition, Thomas Saporito has requested 17 this opportunity to address the PRB. This meeting is scheduled from 10:30 a.m. 18 to 12:00 p.m. Eastern Time. The meeting is being 19 20 recorded by the NRC Operations Center and will be 21 transcribed by a Court Reporter. The transcript will 22 become a supplement to the petition. The transcript 23 will also be made publicly available. 24 I would like to open this meeting with 25 introductions. As we go around the room, please be **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

sure to clearly state your name, your position, and 1 the office that you work for within the NRC for the 2 record. I'll start off. Farideh Saba, Senior Project 3 Manager, Office of Nuclear Reactor Regulation, NRR, 4 5 Division of Operating Reactor Licensing. 6 MR. REZAI: Ali Rezai, Piping and NDE 7 Branch, Materials Engineer. MR. FARZAM: Farhad Farzam, Mechanical and 8 Civil Engineering Branch, NRR Office. 9 MR. CLARK: Michael Clark. I'm an 10 attorney with the Office of the General Counsel. 11 MS. MOZAFARI: Brenda Mozafari, Senior 12 Project Manager, NRR. 13 Tom Boyce. I'm a Licensing MR. BOYCE: 14 Branch Chief in the Office of NRR, Division of 15 Operating Reactor Licensing. 16 MS. MENSAH: Tanya Mensah. I'm the 2.206 17 coordinator in the office of NRR. 18 [CHAIRTOM] BLOUNT: Tom Blount, NRR, 19 Deputy Director in the Division of Policy and 20 Rulemaking. I am the PRB Chair. 21 MS. ROSENBERG: Stacey Rosenberg, NRR, 22 Branch Chief in the Division of Policy and Rulemaking. 23 Okay. Are there MS. SABA: any 24 representatives for the licensee on the phone? Please 25 **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701 www.nealrgross.com (202) 234-4433

introduce yourself.

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2 MR. McCABE: Yes, thanks, Farideh. This is -- good morning to everyone. This is Brian McCabe. 3 4 I'm the Regulatory Affairs Manager for Progress 5 Energy. With me on the call today are John Franke, 6 the Crystal River 3 Vice President; Garry Miller, the 7 General Manager responsible for the Crystal River 3 8 containment project; and John O'Neill, who is serving 9 as counsel to Progress Energy.

10 We appreciate the opportunity to participate in the call today. We understand that, 11 per Management Directive 8.11, this is a call between 12 the NRC and the Petitioner, and that the purpose is to 13 14 afford the Petitioner an opportunity to provide the 15 NRC with additional information relative to the petition. 16

17 So, as such, we understand and respect our 18 role on this call is not to be an active participant, 19 but to, rather, listen to the discussions, and, if 20 necessary, ask clarifying questions, so that we 21 understand the issues that have been raised.

22 So, again, Farideh, we appreciate the 23 opportunity to listen in on the discussions today. 24 And with that, I will turn it back to you.

MS. SABA: Okay. We would like also to --

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6 NRC employees from the region or anybody else on the 1 line please introduce yourself. 2 MR. FRANKE: From Region II, this is Mark 3 Franke, Chief of Engineering Branch HII[3], Division 4 5 of Reactor Safety. MR. CARRION: This is Bob Carron also from 6 Region II, Senior Project Engineer -- Senior Reactor 7 8 Engineer with Engineering HII[3]. Rich Chou, 9 MR. CHOU: С-Н-О-И, 10 Region II --THE COURT REPORTER: Pardon me. This is 11 the transcriber. I am not getting a good recording. 12 Somebody doesn't have their phone on mute. I'm 13 getting interference. 14 MR. McCABE: Hey, Mark Franke, this is 15 Brian McCabe. It seems like when the region is 16 speaking there is a lot of interference in what is 17 coming over the speaker. 18 MR. FRANKE: Okay. So only when we're 19 speaking, Brian? 20 MR. McCABE: Yes, now it's clear. But it 21 seemed like there was some shuffling associated with 22 the speaker that might have been interfering in the 23 communication. 24 MR. FRANKE: Okay. Thank you. What was 25 NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701 www.nealrgross.com (202) 234-4433

the last name that the transcriber was able to get?

THE COURT REPORTER: I couldn't get the names from -- whenever that region started to introduce themselves, the interference started, so I couldn't get the names. They were -- there were only two names.

7 MR. FRANKE: We'll have the same person8 basically introduce all of us.

9 MR. SYKES: Okay. So here in Region II we have Mark Franke, Chief of Engineering Branch HII[3] 10 11 in the Division of Reactor Safety; we have Bob 12 Carrion, Senior Inspector, Division of Reactor Safety; we have Rich Chou, Senior [reactor] Inspector, Division 13 14 of Reactor Safety; we have David Hardage, Reactor 15 Inspector, Division of Reactor Projects; and Marvin 16 Sykes, Chief, Division of Reactor Projects, Branch III[3]. And that's all from here in Region II. 17

And onsite at Crystal River we have I think Lou Lake, Louis Lake, Senior Inspector, DRS, Branch III[3], Engineering Branch III[3]; and Mr. George Thomas from our Office of Nuclear Reactor Regulation in Washington.

23 MS. SABA: Okay. Mr. Saporito, would you 24 please introduce yourself for the record?

MR. SAPORITO: Yes. My name is Thomas

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8 Saporito. I'm a United States citizen. I reside in 1 Jupiter, Florida. 2 3 MS. SABA: Are there any others, such as members of the public, on the phone? 4 MR. DANIELSON: My name is Rick Danielson. 5 I'm a reporter with the St. Petersburg Times. 6 7 MS. SABA: Could you please spell your 8 name? 9 MR. DANIELSON: Yes. First name Richard, R-I-C-H-A-R-D, last name Danielson, D-A-N-I-E-L-S-O-N. 10 MS. SABA: And would you please repeat 11 your association? 12 MR. DANIELSON: I'm a reporter with the 13 St. Petersburg Times in Florida. 14 MS. SABA: Thank you. 15 MR. DANIELSON: You're welcome. 16 PARTICIPANT: This is the headquarters 17 operations officer. Just for your information, if you 18 do not have a mute on your phone, you can mute it 19 through our system by hitting star 6. And then, when 20 you want to unmute, you can hit star 6 again. 21 MS. SABA: Thank you. 22 I would like to emphasize that we each 23 need to speak clearly and loudly to make sure that the 24 Court Reporter can accurately transcribe this meeting. 25 **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701 www.nealrgross.com (202) 234-4433

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1	If you do have something that you would like to say,
2	please first state your name for the record.
3	At this time, I will turn it over to the
4	PRB Chairman, Mr. Tom Blount.
5	CHAIR BLOUNT: This is Tom Blount. Good
6	morning. Welcome to the meeting regarding the 2.206
7	petition submitted by Mr. Saporito. I would like to
8	first share some background on our process.
9	Section 2.206 of Title \times [10] of the Code
10	of Federal Regulations describes the petition process
11	the primary mechanism for the public to request
12	enforcement action by the NRC in a public process.
13	This process permits anyone to petition the NRC to
14	take enforcement-type action related to NRC licensees
15	or licensed activity. Depending on the results of
16	this evaluation, NRC could modify, suspend, or revoke
17	an NRC-issued license, or take any other appropriate
18	enforcement action to resolve a problem.
19	The NRC staff guidance for the disposition
20	of a 2.206 petition request is in Management
21	Directive 8.11, which is publicly available.
22	The purpose of today's meeting is to give
23	the Petitioner an opportunity to provide any
24	additional explanation or support for the petition
25	before the Petition Review Board's initial
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consideration and recommendation.

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This meeting is not a hearing, nor is it an opportunity for the Petitioner to question or examine the PRB on the merits or the issues presented in the petition request. No decisions regarding the merits of this petition will be made at this meeting.

Following this meeting, the Petition Review Board will conduct its internal deliberation. The outcomes of this internal meeting will be discussed with the Petitioner.

11 The Petition Review Board typically 12 consists of a chairman, usually a manager at the 13 senior executive level, senior executive service 14 level, at the NRC. It has a petition manager and a 15 PRB coordinator. Other members of the Board are 16 determined by the NRC staff based on the content of 17 the information and the petition request.

At this time, I would like to introduce the Board. I am Tom Blount, the Petition Review Board Chairman. Farideh Saba is the Petition Manager for the petition under discussion today. Tanya Mensah is the office's PRB coordinator.

Our technical staff includes Farhad Farzam
and George Thomas from the Office of NRR, Mechanical
and Civil Engineering Branch; Ali Rezai from NRR,

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Piping and NDE Branch; Marvin Sykes and Mark Franke, Branch Chiefs from Region II. We also obtain advice from our Office of General Counsel represented by Mike Clark.

As described in our process, the NRC staff may ask clarifying questions in order to better understand the Petitioner's presentation and to reach a reasoned decision whether to accept or reject the Petitioner's request for review under the 2.206 process.

I would like to summarize the scope of the petition under consideration and the NRC's activities to date. On December 5, 2009, Mr. Saporito submitted to the NRC a petition under 2.206 against Progress Energy Corporation at Crystal River Nuclear Generating Station Unit 3.

In this petition request, Mr. Saporito 17 identified the following areas of concern. Physically 18 19 remove the -- Mr. Saporito requests that the NRC take 20 enforcement action against the licensee and issue a confirmatory order requiring that the licensee: 21 one, physically remove the outer 10 inches of concrete 22 23 surrounding the Crystal River Nuclear Containment Building from the top of the Containment Building to 24 25 the bottom of the Containment Building and

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encompassing 360 degrees around the entire Containment Building.

Two, test samples of the concrete removed from the Crystal River Nuclear Containment Building for composition and compare the test results to a sample of concrete from a similarly-designed facility like the Florida Power & Light Company Turkey Point Nuclear Plant.

9 And, three, maintain the Crystal River 10 Nuclear Station in cold shutdown mode until such time 11 as the licensee can demonstrate full compliance with its NRC operating license for Crystal River, within 12 the safety margins delineated in the licensee's final 13 safety analysis report and within the Crystal River 14 Nuclear Station's site-specific 15 technical specification. 16

And, four, provide the public with an opportunity to intervene at a public hearing before the NRC Atomic Safety and Licensing Board to challenge any certification made by the licensee to the NRC that it has reestablished full compliance with 10 CFR 50 and the safety margins delineated in its FSAR and technical specification.

Allow me to discuss the NRC activity to date. On December 9, 2009, the Petitioner requested

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13 to address the PRB prior to its initial meeting, and 1 requested time to prepare supplemental information for 2 the Board's consideration. And that is the meeting 3 that we are having today. 4 5 As a reminder for the phone participants, 6 please identify yourself if you make any remarks, as 7 this will help us in the preparation of the meeting 8 transcript that will be made publicly available. 9 Thank you. 10 Mr. Saporito, I will turn the meeting over 11 to you to allow you to provide any information you believe the PRB should consider as part of this 12 petition. You will have one hour, as you requested, 13 to provide additional information to the PRB. 14 15 MR. SAPORITO: All right. Thank you very 16 much. I appreciate the opportunity to engage the NRC in this manner. 17 First of all, good morning to everyone. 18 As I stated earlier for the record, my name is Thomas 19 Saporito. That's S as in Sam, A-P-O-R-I-T-O. And I 20 21 am the Petitioner in this matter. 22 As a result of the licensee's discovery of a structural defect in the Crystal River Nuclear Plant 23 24 Containment Building, I filed a formal request through the NRC 2.206 process. The specific request was for 25 **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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confirmatory order to take enforcement action, which the Chairman has addressed very adequately.

3 For the benefit of those members of the 4 public who may be attending this meeting today, I will 5 provide a brief background of the events of the 6 Crystal River Nuclear Plant for which this petition 7 During the maintenance activity performed arose. under the direction and authorization of the licensee 8 9 to cut an opening in the Containment Building to gain 10 access to replace steam generator units, it Was discovered that the -- there were separations or 11 12 delaminations in the concrete perimeter of the 13 Containment Building.

Now, the licensee has been engaged in 14 various testing methods to determine the root cause of 15 16 the separations with the delaminations. So before I continue, let me -- let me just state that in a prior 17 teleconference call attended by the NRC, and by the 18 licensee, myself, and others, the licensee made a 19 20 verbal commitment to[through] Mr. Jim Scarola, if I'm 21 not mistaken, to determine the root cause of the delamination of the Containment Building structure 22 prior to the restart of the Crystal River nuclear 23 reactor. 24

First, let me say that I have personally

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worked with Mr. Scarola during the startup of the 2 Florida Power & Light Company St. Lucie Nuclear Reactor Number 2, and I can assure everyone attending this teleconference today that Mr. Scarola is a very competent and knowledgeable individual who always places safety ahead of economics.

7 With respect to the Crystal River 8 Containment Building, the actual root cause of the 9 structural failure may never be fully known. During the last telephone conference call, the licensee 10 stated that they were investigating a number of 11 reasons that may have contributed to the root cause of 12 the Containment Building delamination, and that they 13 were engaged in a process of eliminating this area of 14 15 suspected reason in an attempt to determine the root 16 cause of the Containment Building delamination.

However, because of the nature of this 17 18 particular structural failure, the actual root cause 19 may never really be discovered. And, instead, the 20 licensee, through the process of elimination, may arrive at what I call a best guess determination of 21 the root cause. 22

23 Nonetheless, the NRC's focus should not be 24 solely on what the root cause of the containment structure failure was, but instead I would suggest 25

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that the agency should focus its attention on whether the licensee at some time in the future will be able to return the Crystal River Containment Building's safety design basis, the safety margins required in a licensee's FSAR, and site-specific technical specifications.

7 In other words, the licensee need not be 8 required to state for certain the root cause of the 9 containment structural failure to be allowed to restart the nuclear reactor, so long as the licensee 10 can demonstrate reasonable assurance that the Crystal 11 River Containment Building can function to meet its 12 safety design basis after repairs are completed. 13

14 And I think that is the focus that the NRC should be engaged, because there is, you know -- I am 15 not a rocket scientist or a degreed engineer, but I 16 17 can tell you just, you know, common sense looking at 18 this particular failure, there is a number of reasons 19 that could have caused this failure -- the tensioning 20 of the peripheral tendons prior to making the cut, the manner in which the cut was made, the vibrations, 21 there have been a number of reactor SCRAMs that caused 22 23 the pressure within the containment structure to vary and caused that failure -- the failure of the concrete 24 25 material itself or a chemical reaction of the metal

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material against concrete.

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There are just so many reasons that to be certain of any one particular reason that caused this, I don't -- as a reasonable-minded person, I don't think it's possible, especially because there was no -- in my research no similar failure to this degree and this extent over the course of the operation of the 104 reactors operating in this country.

9 For the benefit of the NRC, I refer -- I 10 have done some research on this topic, and I refer you to a document that's entitled "Detection of Aging [of] 11 Nuclear Power[] Plant Structures." 12 This was apparently authored by D.J. Naus -- that's spelled N-13 A-U-S -- from the Oak Ridge National Laboratory, Oak 14 Ridge, Tennessee, and also by H.L. Graves, G-R-A-V-E-15 S, III, the U.S. Nuclear Regulatory Commission, 16 Washington, D.C. 17

And specific to this article, which drew 18 19 my attention, it speaks at one point in this article 20 about the -- from a safety standpoint, speaking from a safety standpoint, that the containment is -- hello? 21 MS. SABA: We can hear you. 22 MR. SAPORITO: Oh, okay. I thought 23 someone was -- okay. From a safety standpoint, the 24 containment is one of the most important components of 25 **NEAL R. GROSS**

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a nuclear power[]plant, because it serves as the final barrier to the release of fission products or radioactive particles to the outside environment under postulated accident conditions.

5 So that -- that sums it up. That sums up the importance of the -- of the failure of this 6 7 Containment Building, why it is so important the 8 licensee's repairs are such that the licensee return this building to its original design basis, because 9 this is -- we are talking about containing nuclear 10 materials from entering the environment and harming 11 the public. 12

13 The article goes on. It talks about that such physical damage occurs when the geometry of a 14 15 component is altered by the formation of cracks, fissures, or voids, or its dimensions change due to 16 17 overload, buckling, corrosion, erosion, or formation 18 of other types of surface flaws. You know, changes in the component geometry can affect structural capacity 19 20 by reducing the net section available to resist applied loads. 21

So, in essence, the failure or the delamination of the containment structure, and specifically the Crystal River Containment Building, is very significant because it -- in its current state

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it can no longer meet its safety design basis. It can't function sufficiently to protect public health and safety should there be a nuclear accident within that containment structure, and similar to Three Mile Island where you had, you know, a major portion of the core actually melt down.

Fortunately, that containment structure served its design basis, and it functioned to protect the public and the environment by containing those -the majority of that nuclear material, although some was eventually released.

So also what caught my attention in this article was it says, "Where concrete degradation incidents have occurred, they have generally done so early in the life of the structure and were corrected. Causes were primarily related to improper material selection, construction/design deficiencies, or environmental effects."

It says examples of some degradation occurrences include cracking in basements -- base mats (Waterford, Three Mile Island, North Anna, and Fermi); and it says voids under the vertical tendon bearing plates resulting from improper concrete placement as in -- reference Calvert Cliffs plant; failure or prestressing wires, again Calvert Cliffs; cracking of

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post-tensioning tendon anchor heads due to the stress, corrosion, or embrittlement -- they point to Bellefonte, Byron, and Farley plants.

4 And, finally, they talk about the containment dome delaminations due to low quality porous aggregate material and absence of radio[radia] reinforcement, and they specifically refer to the Crystal River Nuclear Power[] Plant.

9 So these -- this delamination event has 10 apparently occurred before, maybe not to the same degree, but it has apparently occurred before at the 11 12 licensee's Crystal River Nuclear Plant. It goes on to say that, on balance[unbalanced], pre-stressing forces 13 14 -- and they referenced the Turkey Point Nuclear Plant; corrosion of steel reinforcement and water intake 15 structures -- again, Turkey Point and San Onofre; 16 leaching of tendon concrete -- again, Three Mile 17 18 Island. And it goes on and on, and it is giving reasons that these failures were likely to have 19 20 occurred in the past.

21 There is no definitive root cause found in my research into any of these events. But it is 22 23 noteworthy that Crystal River has, in the past, experienced containment dome delamination due to the 24 25 quality of the porous aggregate materials. I mean,

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21 there was something wrong with the concrete apparently 1 that was poured in the formation of that structure 2 3 that has -- in the past that has caused delamination. And the NRC does have regulations at 4 10 CFR Part 54 which states to licensees like Florida 5 6 Power -- or Florida -- excuse me, Progress Energy 7 Corporation, in its operation of the Crystal River 8 Nuclear Power[] Plant with respect to the structural 9 integrity of the Containment Building. The article also references -- it says 10 here that the most significant information came from 11 12 inspections performed by the NRC staff of six plants 13 licensed before 1977. And it says most of the information on degraded conditions of the containment 14 structures was submitted by licensees under LERs, or 15 16 licensee event reports, under 10 CFR 50.73. That went the inspections by licensees, 17 to voluntarv 18 inspections, to try to do some type of long-term surveillance of any type of corrosion or defects. 19 20 But the article says -- points out here 21 that -- this is very significant. It says further, 22 "Based on the results of inspections and audits, the NRC was concerned because many licensee containment 23 examination programs didn't appear to be adequate to 24 25 detect degradation that could potentially compromise **NEAL R. GROSS**

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the containment leak-tight integrity."

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So what -- in other words, you know, the status quo of the nuclear industry in their -- their current surveillance programs doesn't appear to be adequate to make detections, like the delamination event we're talking about here at the Crystal River Nuclear Power[]pPlant in its Containment Building.

NRC regulations at Appendix J, under 8 9 10 CFR Part 50, requires a general inspection of the accessible interior and exterior surface of 10 11 containment structures like that at Crystal River and components to uncover any evidence of structural 12 deterioration that may affect either the containment 13 structural integrity or leak-tightness. 14

So, you know, how do you -- how do you inspect a containment structure at a Crystal River facility on a routine basis to make sure that you don't have a delamination?

My concerns are that, you know, you -- the current visual inspections are not satisfactory, obviously, and the current inspection techniques being used by the licensee for the remaining structure of the containment facility at Crystal River, in my opinion, aren't sufficient to determine if there exists more cracks, more fissures, more voids, more

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delaminations of the Crystal River Containment Building.

So, you know, the -- this research article that I've been pointing to here throughout this discussion, they are talking about different volumetric methods to make determinations of delaminations and cracks and fissures and voids, and they talk about ultrasonic testing, eddy current testing, radiographic testing.

And it even points to some 10 of the standards that are defined in Article IWE-3000 of the 11 ASME Code, but all of these tests which this article 12 speaks to, and all of the tests that the licensee has 13 14 done to date, are more or less non-destructive 15 testing, meaning there is some means to inject some certain type of signals and the resultant feedback to 16 make a reasonable determination whether or not other 17 delaminations exist at the Crystal River containment 18 19 structure. And those determinations are not proof positive, in my view, that other fissures or cracks 20 21 are not present.

Now, in my opinion, the only way to make certain that there are no other delaminations, cracks, fissures, voids, or separations in the containment structure itself is to remove 10 inches of concrete

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from the perimeter of that facility, from the top to the bottom, 360 degrees around.

3 And when I -- the reason I quote [in10] 4 inches is because you have peripheral tendons, the 5 peripheral tendons that surround the Crystal River 6 containment structure from top to bottom. Thev are 7 quarter inches in diameter. five and a The 8 containment wall itself -- containment wall itself is 9 42 inches thick from inside to the outside.

10 If you look at the pictures that are 11 already on record of these -- of the cut-away of the opening, you can see that the horizontal tendons, 12 which are five and a quarter inches in diameter, are 13 very near the outer edge of that 42-inch thick wall, 14 so much so, if you visually can place two of them side 15 16 by side, you could see that it is -- there is less than a foot of concrete between the exposed tendon and 17 that -- where the licensee has cut an opening in the 18 19 containment wall, you will see the exposed tendon.

20 Well, that top [poroushorizontal] tendon within 10 inches of the exterior of 21 is that containment wall. So that means there is a tremendous 22 amount of force being applied to a very small part of 23 that 42-inch thick wall. It may or may not have 24 25 something to do with the delamination in this case.

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You know, I can't say.

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2 But on the other hand, what we may have 3 here is a design -- design flaw, meaning the actual 4 design of this containment structure having those 5 tendons placed so close, within 10 inches of the 6 exterior part of that 42-inch thick concrete wall, that design may itself be flawed and subject the 7 entire structure to other cracks and fissures and 8 9 voids, which the licensee simply cannot detect with 10 any type of instrumentation to make certain that -- of 11 their non-existence.

Therefore, the only way to protect public 12 health and safety is to remove 10 inches of concrete 13 all around the building, from top to bottom, so you 14 15 would expose all of the tendons from top to bottom. And with that concrete removed, you could reform that 16 17 structure, and in my view it should be reformed so 18 that you would add additional concrete when you repour it, so that you would have -- so that you would have 19 20 those tendons, which are now within 10 inches of the exterior perimeter of that concrete structure, you 21 should reform it so that when the new concrete is 22 23 poured that those tendons are in the middle of the 24 wall.

So you would have to add concrete so that

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the entire thickness of the wall places the steel perimeter tendons exactly in the middle of that wall, so that you won't have a repeat of this situation, because you would have the extra structural support of the concrete outside the tendons, and it wouldn't be mere 10 inches.

7 Now, the FSAR required licensee to build 8 this containment structure with a model with a thick 9 model -- model a thick perimeter wall, meaning it is one -- one solid structure. So this delamination 10 11 obviously violates the safety margins of the FSAR and 12 the site-specific technical specifications for operation of a Crystal River nuclear reactor under its 13 14 current license.

15 So, therefore, what I would like the NRC 16 to focus on is the -- eventually, you know, we need to 17 get the plant back online, of course, because although 18 we have numerous avenues of renewable energy available, or at our disposal in this current day, we 19 have a viable nuclear power[]plant here that should 20 be brought back into service as soon as possible with 21 22 safety foremost of course.

23 So to that extent, if we are going to 24 bring this reactor back online -- and we need to make 25 certain to protect public health and safety and to

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protect the environment that this containment building not only meets but exceeds its original design basis which is delineated in the FSARs.

And the only way to do that is to make certain there aren't any more flaws in that -- in that building. And you have -- and the only way you are going to do that is through destructive removal of the 10 inches -- of the remaining 10 inches of concrete around the entire building, top to bottom, until you can visually inspect it.

11 And in addition to that, when the licensee arrives at the point where repairs are actually going 12 to be made, it makes -- it is just common sense that 13 you reform the containment building with additional 14 concrete. And with the existing -- with the existing 15 10 inches removed, as I spoke to earlier, you are 16 going to have a higher degree of adhesion from the old 17 18 concrete to the new concrete, because it is going to 19 be uniform, you are going to -- you are going to have 20 a -- you are going to form that -- put new forms around the facility to pour the new concrete, and you 21 going to have a higher degree of success and 22 are reasonable assurance that the concrete perimeter wall 23 of the Containment Building has been restored to 24 monolithic status. 25

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Otherwise, if the NRC allows the licensee to merely remove 20 or 30 feet around the existing defect, and to do a patch, there is no reasonable assurance, number one, that that patch adequately adhered to the existing concrete or that other fissures and voids and delaminations do not exist.

So those are my concerns, and I have given 7 8 some direction through reference of this the NRC 9 document I spoke to earlier, which has covered a lot of these areas. But, you know, what the NRC should be 10 11 concerned with is that the containment building 12 eventually be returned to its original design basis, 13 if not better, and that the licensee has provided 14 reasonable assurance through removal of the perimeter concrete that there are no more fissures or voids, and 15 16 that recurrence through the method of repair assures 17 that these defects won't again occur in the future.

And if there is any questions, I will certainly do my best to answer them at this time.

CHAIR BLOUNT: Mr. Saporito, this is Tom Blount. I do have a question. Could you go back to the title of the article that you were using as a reference, please, and give me the --

24MR. SAPORITO:Yes.Yes, it's entitled25"Detection of Aging [of] Nuclear Power[.][pP]lant

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29 1 Structures." And underneath that it says "draft," and 2 underneath that it says D as in David, J as in Jack, 3 Naus, N as in Nancy, A-U-S, Oak Ridge National Laboratory, Oak Ridge, Tennessee, and underneath that 4 5 it has H as in Henry, L as in Lucy, Graves, G-R-A-V-E-6 S, III, U.S. Nuclear Regulatory Commission, 7 Washington, D.C. 8 CHAIR BLOUNT: Does that -- this is Tom 9 Blount again. Does that document have a number 10 associated with it? MR. SAPORITO: I don't -- I don't see a 11 12 document number. 13 CHAIR BLOUNT: Okay. What I'm asking is, is it an NRC document? 14 MR. SAPORITO: Well, I believe it -- I 15 16 believe it is. It is -- well, there is a -- going to 17 the very end of it here, it looks like it's 36 -- 36, 37 pages. It's -- well, I'm trying to find you a 18 reference. Okay. There is no -- I mean, there's a 19 bunch of NRC -- it references a bunch of NRC documents 20 21 at the very end of the document, but there is no --22 there is no telling the NRC database number for this. CHAIR BLOUNT: Okay. So it is the NUREG, 23 24 then. That's what I'm asking you. Is it --25 MR. SAPORITO: No, it's not a -- I don't **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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30 believe it's a NUREG. No, I think -- I believe this 1 2 is a document that was drafted by these two 3 individuals for the benefit of the NRC. And whether a 4 NUREG was developed from this I -- I can't say at this point. I haven't had enough time to do further 5 research. 6 CHAIR BLOUNT: Okay. All right. That's 7 -- I was just trying to understand the genesis and the 8 basis of the document, and I think you told me 9 somewhat that it is a draft document. 10 MR. SAPORITO: Yes. 11 CHAIR BLOUNT: Okay. And it was developed 12 by an NRC employee. 13 MR. SAPORITO: Yes, it appears to be. 14 H.L. Graves, III, appears to be an NRC employee, and 15 D.J. Naus appears to be an employee of the Oak Ridge 16 17 National Laboratory. CHAIR BLOUNT: Okay. Gotcha. I 18 19 appreciate that. Let's see. At this time, does anyone at 20 the headquarters staff have any questions for Mr. 21 Saporito? 22 (No response.) 23 Okay. Looking around the table, seeing no 24 questions here, does anyone for the region have any 25 **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. www.nealrgross.com WASHINGTON, D.C. 20005-3701 (202) 234-4433

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1	questions for Mr. Saporito?		
2	MR. SYKES: No, we don't in Region II.		
3	CHAIR BLOUNT: And from Crystal River NRC		
4	staff?		
5	MR. LAKE: No questions from Crystal River		
6	NRC staff.		
7	CHAIR BLOUNT: Thank you. Does the		
8	licensee have any questions for Mr. Saporito?		
9	THE COURT REPORTER: I'm sorry. Who was		
10	that from the region, the Crystal River staff? This		
11	is the transcriber.		
12	MR. SYKES: This was Marvin Sykes in		
13	Region II.		
14	MR. LAKE: This is Louis Lake down here,		
15	NRC, at Crystal River.		
16	MR. McCABE: Thanks, Tom. This is Brian		
17	McCabe from Progress Energy. Progress Energy has no		
18	questions.		
19	CHAIR BLOUNT: I understand no questions.		
20	Do we have any members of the public on		
21	the line?		
22	(No response.)		
23	Is the gentleman from the press still on		
24	the line?		
25	MR. DANIELSON: Yes, this is Rick		
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32 Danielson with the St. Pete[rsburg] Times. 1 I don't 2 have any questions. 3 CHAIR BLOUNT: Before I conclude, members 4 of the public may provide comments regarding the 5 petition and ask questions. I understand you have no questions at this time. Do you have any comments? 6 7 (No response.) 8 Understanding that there are no questions 9 or comments, Mr. Saporito, thank you very much for 10 taking the time to provide the NRC staff with 11 clarifying information on the petition you submitted. 12 Before we close, does the Court Reporter 13 require or need any additional information for the 14 meeting transcript? THE COURT REPORTER: I do. 15 16 (Whereupon, some spellings and clarifications of technical terms were provided by 17 Mr. 18 Saporito.) 19 CHAIR BLOUNT: Very good. With that, the 20 meeting is concluded, and we will be terminating the 21 phone connection. Thank you very much for your time, 22 everyone. Have a nice day. 23 (Whereupon, at 11:21 a.m., the proceedings in the foregoing matter were concluded.) 24 25 **NEAL R. GROSS** COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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Enclosure-Three

DOCUMENT NUMBER-DATE 04954 JUL 18 = FPSC-COMMISSION CLERK

Crystal River Unit #3 Containment Delamination Update

November 20th 2009





FPSC-COMMISSION CLERK

DOCUMENT NUMBER-DATE

JUL 18 =

04954

Agenda

- Introduction
- Plant Overview
- CR3 Containment Design Features
- SGR Opening Sequence & Identification of Delamination
- Investigative Approach
- Condition Assessment
- Root Cause Analysis (RCA)
- Operational Experience (OE)
- Design Basis Analysis (DBA)
- Repair Approach
- Summary Comments / Questions





Crystal River 3 Overview

- Babcock and Wilcox Pressurized Water Reactor
- Location: Crystal River Florida
- 2609 MW_{th}
- 838 MW_e
- Commercial Operations began 1976







2009 Crystal River 3 Outage Overview Building a nuclear future for Florida customers

- Routine refueling scope
 - Off line maintenance and fuel for 2 years
- Steam Generator Replacement (SGR)
- Extended Power Uprate (EPU) Phase 2
 - Extensive steam plant work
 - Taking advantage of longer OTSGR duration
 - Steam plant efficiencies
 - Part of total ~15% Uprate





Steam Generator Replacement (SGR) Work Breakdown

- Containment Opening
- Lifting and Rigging
- Cutting and welding







Extended Power Uprate (EPU) Work Breakdown

- Generator Replacement
 - Stator, Rotor, Exciter
- Moisture Separators
- MSR Drain Coolers
- Lube Oil Coolers
- Feed Water Heaters
- Iso-Phase cooling







CRYSTAL RIVER #3 DESIGN FEATURES







Fission Product Barriers Simplified Schematic



CR3 Containment Dimensions

Dimension	Value
Containment Outside Dimension (OD)	137 ft 0.75 in
Dome Thickness	36 in
Basemat Thickness	12 ft 6 in
Liner Thickness	0.375 in
Wall Thickness	42 in
Buttress Wall Thickness	5 ft 10 in
Vertical & Hoop Conduit OD	5.25 in
# of Vertical Tendons	144
# of Tendon Hoops	94
# of Tendons per Hoop	3
# of Prestressed Dome Tendons	123





SGR OPENING SEQUENCE & IDENTIFICATION OF DELAMINATION







Steam Generator Replacement (SGR) Opening (between Buttresses 3 and 4)



SGR Opening Dimensions

@ Liner 23' 6" x 24' 9"

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



Concrete Removal



Concrete & Liner Removal Sequence









13

Delamination Close-up







Location of the Delamination



INVESTIGATION APPROACH









External Support

Condition Assessment & Laboratory Testing

- NDT Construction Technology Laboratories (CTL)
- Labs MacTec, Soil& Materials Engineers (S&ME)
- Other Field Data Sensing Systems, Inc; Core Visual Inspection Services (Core VIS), Nuclear Inspection & Consulting, Inc; Precision Surveillance; Gulf West Surveying Inc; AREVA
- Root Cause Analysis
 - Lead Performance Improvement International (PII)
 - Owner's Support Worley Parsons, Bechtel





External Support (continued)

Design Basis Analysis

- Lead MPR Associates, Inc.
- Owner's Support Worley Parsons

Repair Analysis

- Lead Structural Preservation Systems (SPS)
- Owner's Support Wiss, Janney, Elstner, Inc (WJE)

Industry Support

• Exelon, SCANA, and Southern Company





Organization – Functional View



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Nuclear Safety Oversight Committee (NSOC) Containment Sub-Committee Membership

Member	Title	
Bob Bazemore (PGN)	VP-Audit (Chairman)	
Joe Donahue (PGN)	VP- Nuclear Oversight	
Chris Burton (PGN)	VP – Harris	
Greg Selby	Technical Director - EPRI	
Dr. Shawn Hughes	VP - Shaw Stone and Webster	
Dr. Paul Zia	Civil Engineering Professor, NCSU	
Hub Miller	33 years industry oversight experience	
Darrell Eisenhut	41 years industry operation and oversight experience	





CONDITION ASSESSMENT







Condition Assessment Activities *Completed or Planned*

Determine Extent of Condition

- Characterize the extent of delamination at the SGR opening
- Determine condition of other portions of structure

Non Destructive Testing (NDT) of Containment Wall Surfaces

- Use of Impulse Response (IR) Method
- Comprehensive on external exposed surfaces
- Accessible areas in adjacent buildings




Condition Assessment Activities

Completed or Planned

Concrete Cores

- Used to confirm IR results (over 80 cores)
- Visual examination of core bore holes with boroscope to identify if delamination present
- ASME Section XI IWL visual inspection (affected areas)

Containment Dome Inspections

- NDT IR scans in segment above the SGR opening
- Concrete cores with boroscope examination of bore holes
- Physical survey with established benchmarks





Condition Assessment Techniques *Impulse Response (IR)*





- IR Equipment
 - Primary test method used in this evaluation

• IR Performed in the Field





Condition Assessment Techniques *Ground Penetrating Radar (GPR)*



- Ground Penetrating Radar (GPR) Equipment
 - Locates internal features (rebar, tendon conduits, etc.)
- GPR Performed in the Field





Condition Assessment Techniques *Core Bores & Boroscopic Examination*





Examination – Inward View



Examination – Side View

Core 51, Gap 1 Depth 5-1/4" Gap 1 Width Less than 1/8"



Condition Assessment Techniques Impact Echo (IE)





- IE Equipment
 - Ability to determine depth of delamination
- IE Performed in the Field









Containment "Unfolded" – Buttress 5 to 2 Updated Nov 18th 2009

2 6 Q 3 5 4



Core Bores

Buttress Spans 2 - 3 - 4 - 5 (as of Nov 17th 2009)



Core Bores

Buttress Spans 5 - 6 - 1 - 2 (as of Nov 17th 2009)





Horizontal Tendons Buttress 2 - 4

Additional tendons to be detensioned prior to closing SGR opening (preoutage plan)

Tendons Removed

Additional tendons to be detensioned prior to closing SGR opening (preoutage plan)



Source Drawing: 0425-006 SH001 - SH 000



Enclosure-Four



For reasons specified within the petition request, the petitioner requests that the NRC take enforcement action against Progress Energy Company, the licensee for Crystal River Nuclear Generating Plant, Unit 3, in the interest of protecting public health and safety regarding the structural failure of the Crystal River, Unit 3, containment building.

BACKGROUND, ACTIONS, & KEY MILESTONES			
The petitioner filed a petition for an enforcement action under 10 CFR 2.206.	12/05/09	 On November 23, 2010, OEDO approved an 1' extension request until June 3, 2011, to permit additional time for the staff to issue the proposed director's decision. The petition manager informed the petitioner of this 	1/23/10
For a complete summary of NRC actions before March 1, 2010, please refer to the April 2011 monthly status report (ADAMS Accession No. ML111220348).	03/01/10	 change on November 23, 2010. On May 27, 2011, OEDO approved an extension request until December 2, 2012, to permit additional time for the staff to issue the proposed director's decision. The petition manager informed the petitioner of this 	05/27/11
On March 4, 2010, the PRB issued an acknowledgement letter (ADAMS Accession No. ML100471416) to the petitioner. The acknowledgement letter conveyed the final recommendation to accept the petition for review, in part.	03/04/10	change on May 27, 2011.	
On June 24, 2010, OEDO approved an extension request until December 4, 2010, to permit additional time for the staff to issue the proposed director's decision. An extension was needed because of the complexity of the activities that the licensee needs to complete and for the NRC to review and evaluate these actions. The petition manager informed the petitioner of this change on June 24, 2010.	06/24/10		
In an e-mail dated October 17, 2010, the petitioner requested another opportunity to present additional information to the PRB as a direct result of information shared during an NRC public meeting held with the licensee on June 30, 2010. In accordance with Management Directive (MD) 8.11, the petition manager informed the petitioner that additional information should be submitted in writing to the OEDO for PRB consideration. If the PRB determines that a call is warranted with the petitioner to clarify any additional information provided, a conference call will be coordinated. To date, the petitioner has not provided any new information to the EDO for PRB consideration.	10/17/10		