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Seabrook Concrete Degradation
PREDECISIONAL INFORMATION

REGION I

Seabrook Concrete Degradation & Implications to Part 50 and 54
December 20, 2011
200pm

Conference Call Logistics: Dial in number: 888-790-8833 Passcode: (b)(6)

Rx 6

Objectives (Purpose):

1. To communicate on efforts to date in a summary way on the alkali-silica reaction problem at Seabrook.
2. Provide next steps in January 2012 in order to elevate regulatory footprint on the issue,
3. Also update on the developments in other areas that need to be kept in mind.

Success Criteria (Potential Outcomes):

1. Enhanced understanding of the topics discussed (communications is the key).
2. All input and views obtained in order to get the issues addressed with final decisions reflected in the action plan.
3. Achieve alignment on next steps for January 2012.

Agenda (Process - 30-45 min):

| | | |
|-------------|-----------|---|
| (5 min) | Conte | Overview (roll call, check alignment, summary of main points) |
| (10 min) | Burritt | (Conte) Summary of Actions To Date |
| (5 min) | Conte | Developments in Other Areas (Hearing, Public, Safety Review, License Renewal, Commission) |
| (10 min) | Conte | (Burritt) Next Steps |
| (5 min) | Conte/All | Immediate Safety/Longer Term |
| (Time Left) | All | Summary/Critique |

See Attendees Decision and Actions at the end of the Talking Points

(b)(5)

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemption 5, b6
FOIA 2012-0119

B.5

5/14

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TALKING POINTS

(5 min) Overview

Roll call of attendees

Are there any questions related to purpose, success and process (agenda) of this conference and what we hope to get out of it?

Main Messages:

(b)(5) [redacted] R_x5

(b)(5) [redacted] There have been a number of findings of very low safety significance, for now, which we will summarize (attachment 1 details). To some extent, those findings reflect the licensee's uncertainty.

In addition to organizational quality control, the need for comprehensive plan should give the agency the direction that licensee is heading. After all this time, we should be able to say whether their direction will produce reasonable results (DLR has been asking for this plan since October 2010).

The details of the plan should reflect what activities they will be doing (lab testing, insitu monitoring, or other inspections and evaluations). This is key to knowing that the planned Engineering Evaluation will be well founded to produce a timely final operability determination (over a year old issue). (b)(5)

(b)(5) [redacted] right now the focus is on operability. R_x5

We were (b)(5) [redacted] during a standalone inspection that started 9/28/11 (our commitment from the last executive brief in September 2011) to find, that while a contractor recommended tensile strength testing on concrete cores, they only performed compressive strength testing in order to address a discrepancy in data found earlier in the year – evidence of poor quality control. However a Region III inspector reported a well control process for the data obtained. R_x5

In either case (Eng. Eval. Potentially acceptable or not), (b)(5) [redacted] R_x5

(b)(5) [redacted]

(b)(5) [redacted] Ongoing review for immediate safety issues is continuous.

The steps in January 2012 will begin the process of establishing that clearer and elevated regulatory footprint. We look for your alignment on this effort.

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(10 min) Burritt Summary of Actions To Date

Refer to Attachment 1

Refer to Attachment 2 for what the licensee is doing. Based on status call of 11/30: NextEra agrees key parameters need to be addressed are listed below (the key questions are how and when):

- Compressive Strength,
- Modulus of Elasticity,
- Shear Strength (not clear how it will be addressed without tensile strength testing)
- Poisson Ratio

**(5 min) Conte Developments in Other Areas
Commission) (Hearing, Public, Safety Review, License Renewal,**

Nothing on Hearings – no new motions related to ASR.

C-10 Inquiry on ASR issue continues and with intensity – Region I Com Tech handling.

Certain members of the public are looking for an open forum on the ASR issue (they called it a "hearing" at the DEIS meeting in September 2011) (b)(5)

(b)(5)

DLR safety staff continued to support standalone inspection and other various conference calls to date – SER with open items tied by 7/12/11 letter from NRC to an acceptable Eng. Evaluation in March 2012.

Region I EDO coordinator briefed December 7, 2011 – he will be moving on in January 2012 to be relieved by another, which means another briefing – Kathryn Brock is the continuum and she will need to be briefed at that time.

(b)(5)

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(10 min)

Conte/Burritt

Next Steps

NRC Actions Going Forward to Address Degraded Concrete at Seabrook

| | |
|--------------------------|--|
| Dec 29 concerns) | Draft TIA response is expected (continuously review for immediate safety |
| Week 1/3/12 PM 1/5/12 | Review and digest TIA response, conference at the branch chief level, |
| Week of 1/9/12 | Inspection preparation/actual review This week and/or next, inspection to evaluate the open operability determinations using the criteria established in the draft TIA Need George Thomas and Suresh Chaudhary |
| Wed Jan 11 | Status call with NextEra, verbally communicate open issues to be discussed next week. |
| Week Jan 17 (Tue) | Conduct final inspection and exit for standalone inspection 2011-010 Day 1 Might be opportunity to review latest plans and position paper Management Meeting (branch level and/or Sr. Executive Strategist Day2 Morning, Final Exit and key messages |
| Week 1/23/12 | Issue Report with key messages and needed requests depending on inspection results wrt operability Eg: Response in 30 days or management meeting in order to address: Details of Comprehensive Plan for ASR Position on whether tensile strength testing or other noted NDE tests will be done Other issues, feasibility of Eng. Eval in March 2012 in light of stated questions and concerns to support operability |

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(5 min) Conte/All Immediate Safety/Longer Term

No immediate safety concern:

(From Commission briefings) Based on staff's review of licensee's current operability determination, the staff found that the degradation from the ASR has no apparent immediate safety concern because:

- Although there was degradation, there is still significant margin between the strength available and strength needed
- Consistent with existing non-nuclear operating experience with ASR, the degradation at Seabrook appears to be occurring slowly
- The licensee's schedule for developing and implementing corrective actions would address the issue well in advance of the degradation reaching unacceptable levels

PODs revised in October 2011 address additional design issues based on information known at the time.

Robust systems of reinforced concrete; additional information on compressive strength value not that much different from as left construction conditions (NextEra still evaluating all results).

NextEra will be prepared to address why one contractor's CS numbers were initially high – low aspect ratio with correction factors and older technology used

Final TIA for Control Building, as an example of what to look for in assessing ASR problem, to be issued January 2012 – need to continue to assess any immediate safety concerns.

(b)(5)

NextEra doing remodeling of Containment Enclosure Building, finite element analysis since it has worst degradation on modulus of elasticity (but operable) and seismic response may be different from other structures such as the control building.

Assistance in reviewing the final OD for the Control Building based on the criteria established in the current TIA.

Does the agency need to do independent core sample testing??????

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Summary/Critique

(Time Left) All

Revisit Purpose and Success

Alignment for Proceeding

DORL

DE

LR Projects

LR Technical

DRP

DRS – Lead Strategists

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Attachment 1

NRC Inspection Timeline for Degraded Concrete at Seabrook

Third Quarter 2010

- NextEra identifies reduced compressive strength and modulus of elasticity in the Control Building
- 1 operability sample, no findings identified (report 2010004)

Fourth Quarter 2010

- 1 Maintenance Rule sample, no findings identified (report 2010005)
- 1 finding was considered but the initial approach was explicitly prohibited by the Enforcement Manual
- License Renewal Audit verbally communicated to NextEra the need for a comprehensive plan to address ASR

First Quarter 2011

- 1 Maintenance Rule sample
- Identified 2 Maintenance Rule findings as a result of further follow up from previous period (2011002).
 - failure to re-evaluate the Control Building A2 status following the discovery of ASR
 - inadequate scoping of buildings that support the circ water and service water systems

Second Quarter 2011

- NextEra identifies reduced modulus of elasticity in additional buildings (CE, EFW, EV, EDG)
- 2 operability samples
- Identified 2 URIs
 - Inadequate 50.59 screening that incorporated the reduce modulus of elasticity into the design of the plant (use as is)
 - Inadequate operability determination (did not address all aspects impacted)
- Identified 1 finding for an untimely OD to address reduced modulus in the Control Enclosure (report 2011003)
- License Renewal inspection completed, concluded that inspection results support a conclusion of reasonable assurance to monitor the effects of aging except for the structures monitoring program with respect to the ASR issue.
- Tensile stress testing identified to NextEra as a key parameter needed to assess operability

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Third Quarter 2011

- Started follow-up inspection to address URIs
- Issued a TIA to address additional potential operability issues

Fourth Quarter 2011

- Identified 2 findings (report 2011011 draft)
 - Inadequate 50.59 screening, the related URI will be closed
 - Inadequate operability determination. Specifically, did not address 1) pipe and cable support anchors, 2) changes in natural frequency, 3) global seismic response of buildings. The related URI will be update and remains open
- Annual PI&R sample to address the Maintenance Rule scoping finding

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Attachment 2

Summary of Licensee projects from their implementation schedule.

NextEra ASR Project Implementation Schedule

| <u>Start</u> | <u>Finish</u> | <u>Sub dates</u> | <u>Sub dates</u> | <u>Activity - Subactivity</u> |
|--------------|---------------|------------------|------------------|---|
| 11/18/11 | 12/16/11 | | | 01 - Identify MR Structures affected by ASR (Phase I) [Phase I for areas that have already exposed concrete] |
| | | 12/12/11 | 12/16/11 | One end product is to identify additional testing needed from summary report |
| 11/01/11 | 01/31/12 | | | 02 - Identify MR Structures affected by ASR (Phase II) [Phase II for areas that need coating removal] |
| | | 01/16/12 | 01/20/12 | One end product is to identify additional testing needed from summary report |
| 12/09/11 | 01/09/12 | | | 03 - Perform confirmatory compression test of concrete in "B" Elect. Tnl. CS testing done in Nov. 2011 ???? |
| | | 12/12/11 | 12/16/11 | CE revise EC to remove tensile testing (if required) |
| 11/17/11 | 05/20/14 | | | 05 – Long term lab monitoring for residual concrete expansion and aggregate reactivity |
| | | 03/02/12 | 04/30/12 | Remove and ship 30 cores to lab. |
| 01/16/12 | 02/24/12 | | | 06 – Insitu Monitoring for Concrete Expansion (installed mapping pins) |

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| <u>Start</u> | <u>Finish</u> | <u>Sub dates</u> | <u>Sub dates</u> | <u>Activity - Subactivity</u> |
|--------------|---------------|------------------|------------------|--|
| 01/16/12 | 02/24/12 | | | 07 – Structural Re-analysis of Containment Enclosure Building (CEB) |
| | | 11/29/11 | 12/09/11 | Installing mapping pins in CEVA Area No. 1 |
| | | 12/14/11 | 12/16/11 | Installing mapping pins in CEVA Area No. 2 |
| 11/07/11 | 02/16/12 | | | 08 – Structural Assessment of ASR Affected Structures |
| 11/21/11 | 03/15/12 | | | 09 – Dev. Eng. Eval. To address requests for RAI B.2.1.31-1 |
| | | 03/16/12 | 04/23/12 | Update appropriate Eng. Prog. Based on results of Eng. Eval. |
| 11/17/11 | 03/12/12 | | | 10 – Embedments Testing Petrography of cores from girders – damage index rating and visual assessment |