

Group F

FOIA/PA NO: 2013-0332

RECORDS BEING RELEASED IN PART

The following types of information are being withheld:

- Ex. 1: Records properly classified pursuant to Executive Order 13526
- Ex. 2: Records regarding personnel rules and/or human capital administration
- Ex. 3: Information about the design, manufacture, or utilization of nuclear weapons
 Information about the protection or security of reactors and nuclear materials
 Contractor proposals not incorporated into a final contract with the NRC
 Other _____
- Ex. 4: Proprietary information provided by a submitter to the NRC
 Other _____
- Ex. 5: Draft documents or other pre-decisional deliberative documents (D.P. Privilege)
 Records prepared by counsel in anticipation of litigation (A.W.P. Privilege)
 Privileged communications between counsel and a client (A.C. Privilege)
 Other _____
- Ex. 6: Agency employee PII, including SSN, contact information, birthdates, etc.
 Third party PII, including names, phone numbers, or other personal information
- Ex. 7(A): Copies of ongoing investigation case files, exhibits, notes, ROI's, etc.
 Records that reference or are related to a separate ongoing investigation(s)
- Ex. 7(C): Special Agent or other law enforcement PII
 PII of third parties referenced in records compiled for law enforcement purposes
- Ex. 7(D): Witnesses' and Allegers' PII in law enforcement records
 Confidential Informant or law enforcement information provided by other entity
- Ex. 7(E): Law Enforcement Technique/Procedure used for criminal investigations
 Technique or procedure used for security or prevention of criminal activity
- Ex. 7(F): Information that could aid a terrorist or compromise security

Other/Comments: OUT OF SCOPE

This checklist is to be used to transmit information to the NRR Allegation Team

Outside of Scope

Is the issue a declaration, statement, or assertion of impropriety or inadequacy

Is the impropriety or inadequacy associated with NRC-regulated activities?

Outside of Scope

Is the validity of the issue unknown?

Outside of Scope

Received By:

Outside of Scope

Phone:

Outside of Scope

Receipt Date/Time:

11-19-12

Receipt Method:

Outside of Scope

Source of the Issue:

Scope

Outside of Scope

71

Outside of Scope

Outside of Scope

F

RES

Chaudhary, Suresh

From: Raymond, William
Sent: Thursday, November 08, 2012 12:02 PM
To: Chaudhary, Suresh
Subject: Shear Testing of ASR Degraded Beams
Attachments: TxDOT Report IAC-12-8XXIA006.pdf

Hi Suresh...FYI
Sorry I left you out of the initial mailing...
Bill

From: Raymond, William
Sent: Thursday, November 08, 2012 11:58 AM
To: Philip, Jacob
Cc: Conte, Richard; Cook, William; Buford, Angela; Thomas, George; Shelkh, Abdul
Subject: RE: Conference Details (NOV 08, 2012--09:30 AM ET--Conf# 7867750)

Jake,
Please find attached the reference I spoke of during our teleconference. I found the document online via a Google search by title so it is publicly available.
I have included a reference to the link in case there is trouble in the email system with the 10 meg pdf attachment.

ASR/DEF-Damaged Bent Caps - Ferguson Structural Engineering ...

fsel.engr.utexas.edu/publications/docs/IAC-12-8XXIA006.pdf

You +1'd this publicly. Undo

File Format: PDF/Adobe Acrobat

iii. **ASR/DEF-Damaged Bent Caps: Shear Tests and Field Implications.** Over the last decade, a number of reinforced concrete **bent caps** within Houston, Texas ...

The test program planned for Seabrook will be modeled after the testing described therein. The document reflects much of the thinking about ASR and the approach being taken by NextEra. Please share this with other meeting attendees as you deem appropriate.

Bill

From: Philip, Jacob
Sent: Wednesday, November 07, 2012 4:16 PM
To: Cook, William; Raymond, William
Cc: Conte, Richard
Subject: FW: Conference Details (NOV 08, 2012--09:30 AM ET--Conf# 7867750)

Since both of you will be participating, I thought it better to have a telecon number you can call into. There are a total of 5 lines.

The details are attached:

Telephone # (b)(6)

Pass code: (b)(6)

Jake

F2

#

RES

Chaudhary, Suresh

From: Conte, Richard
Sent: Tuesday, February 12, 2013 10:39 AM
To: Fuhrmann, Mark; Cook, William; Buford, Angela; Philip, Jacob; Graves, Herman; Sheikh, Abdul; Thomas, George; Ott, William
Cc: Chaudhary, Suresh; Trapp, James
Subject: RE: comment on Structures Monitoring Paper for ASR Working Group Review

Good thoughts.

We seem to want them to use ACI 349.3R but we seem to stop short of initiating action to get them to use it more formally. As I understand it, the only endorsement is from the GALL.

Can anyone in Research tell us if there is any incentive or action to get a reg. guide out to endorse its use before year 40?

Also, Jake can you give an update on where you are wrt office comments and what are we asking NIST to do – are there any additional conferences planned?

From: Fuhrmann, Mark
Sent: Tuesday, February 12, 2013 9:14 AM
To: Cook, William; Conte, Richard; Buford, Angela; Philip, Jacob; Graves, Herman; Sheikh, Abdul; Thomas, George; Ott, William
Subject: comment on Structures Monitoring Paper for ASR Working Group Review

Hi Bill;

This position paper looks quite good. However, I think that adding a recommendation that points toward NDE methods is important. These are outlined in ACI 349.3r section 3.5.2.....In ACI 349 it is acknowledged that NDE has drawbacks but it also states that these methods are valuable and should be tried. We need to recognize that the moisture entering the system is from the outside surface of the members (at least for the subsurface areas). As such the outside concrete and rebar are potentially more impacted by degradation than the inside surface because of the time required for moisture transport through good concrete. NDE provides the only possibility of assessing the whole thickness (short of excavating or coring the total thickness), as well as allowing time series analysis. I suggest inserting the following into the recommendations:

6) None Destructive Evaluation (NDE) methods for concrete as outlined in ACI 349.3r section 3.5.2 should be applied to degraded and intact concrete, in conjunction with core sampling. Periodic NDE testing should then help assess progression of ASR, aid in validate CCI and deep pin results, and potentially provide information on deeper sections of the concrete.

Let me know what you think
Mark

Mark Fuhrmann, Ph.D.
Geochemist
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Mail Stop CSB 2C-07m
11555 Rockville Pike
Rockville, MD 20852-2738

mark.fuhrmann@nrc.gov

Phone: 301-251-7472

Fax: 301-251-7410

From: Cook, William

Sent: Friday, February 08, 2013 8:40 AM

To: Conte, Richard; Buford, Angela; Cartwright, William; Chaudhary, Suresh; Cline, Leonard; Cruz, Holly; Erickson, Alice; Floyd, Niklas; Fuhrmann, Mark; Graves, Herman; Hogan, Rosemary; Hughey, John; Khanna, Meena; Kobetz, Timothy; Lamb, John; Manoly, Kamal; Marshall, Michael; Merzke, Daniel; Milano, Patrick; Morey, Dennis; Murphy, Martin; Ott, William; Philip, Jacob; Raymond, William; Schroeder, Daniel; Sheikh, Abdul; Sircar, Madhumita; Stuchell, Sheldon; Thomas, George; Trapp, James

Cc: Chernoff, Harold; Miller, Chris; Clifford, James

Subject: Structures Monitoring Paper for ASR Working Group Review

All,

The attached position paper and memo captures all the comments I have received, to date. Thanks to those who provided feedback and edits. I expect to outline this paper on the next conference call. Please note the latest revisions are in red and that the initial licensee response/reaction has been added.

Any additional feedback is always welcome.

Regards,
Bill

William A. Cook
Senior Reactor Analyst,
USNRC, Region I

(610) 337-5074 (work)

(b)(6)

Tift, Doug

Pat Dostie

From: Dostie, Pat <Pat.Dostie@maine.gov>
Sent: Monday, December 10, 2012 4:18 PM
To: Tift, Doug
Subject: RE: Seabrook Inspection Report

Thanks Doug.

release

From: Tift, Doug [<mailto:Doug.Tift@nrc.gov>]
Sent: Monday, December 10, 2012 3:33 PM
To: Dostie, Pat
Subject: RE: Seabrook Inspection Report

No problem. And here is a press release we just issued. The press release references a website we've created where we have all of the Seabrook ASR information in one place. Here is the link:
<http://www.nrc.gov/info-finder/reactor/seabrook/concrete-degradation.html>

-Doug

From: Dostie, Pat [<mailto:Pat.Dostie@maine.gov>]
Sent: Monday, December 10, 2012 3:00 PM
To: Tift, Doug
Subject: RE: Seabrook Inspection Report

Thanks Doug. I appreciate your promptness.

release

Pat

From: Tift, Doug [<mailto:Doug.Tift@nrc.gov>]
Sent: Monday, December 10, 2012 1:33 PM
To: Dostie, Pat
Subject: Seabrook Inspection Report

Pat,

Attached is the Seabrook ASR inspection report that was publicly released last week. The last 4 pages of the document is the Confirmatory Action Letter that was issued in May.

I'll get you a copy of the meeting slides as soon as the staff returns to the office from the meeting.

-Doug

Doug Tift
Regional State Liaison Officer
Office: 610-337-6918

(b) (6)] 26

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Dentel, Glenn

From: Cook, William
Sent: Friday, August 23, 2013 2:14 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Raymond, William; Buford, Angela; Floyd, Niklas; Marshall, Michael; McMurtray, Anthony; Cataldo, Paul; Plasse, Richard; Lamb, John; Dentel, Glenn; Chaudhary, Suresh
Subject: RE: ASR Conference Call

Follow Up Flag: Follow up
Flag Status: Flagged

Rick, Ted and Paul,



ASR Update
Agenda for 8-28...

Attached is our proposed agenda for the call. Please feel free to add other items as you see fit.

Thanks,
Bill

-----Original Appointment-----

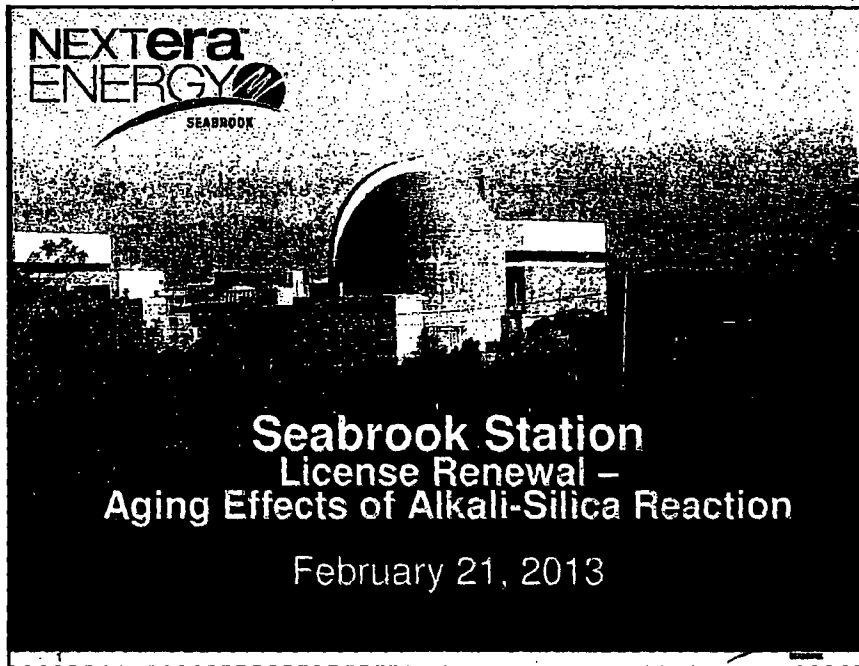
From: Willoughby, Paul (b)(4) [redacted]@nexteraenergy.com
Sent: Wednesday, August 21, 2013 5:31 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Cook, William; Raymond, William; Buford, Angela; Floyd, Niklas
Subject: ASR Conference Call
When: Wednesday, August 28, 2013 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: SBK-IPC-2-ConferenceRoom

Call in number (b)(6) [redacted] passcode (b)(6) [redacted] [redacted]

Agenda
NextEra to provide update on testing

Agenda for August 28th ASR Call with NextEra

- Provide update of UT-Austin test program (CCI monitoring of anchor test specimens and shear/lap-splice specimen fabrication and aging)
- Discuss preliminary options for alternative anchor testing, if CCI values aren't achieved on test specimens (e.g., in-situ at Unit 1 or 2, different design test specimens, etc)
- Discuss potential impact of anchor test specimen aging/CCI observations on future shear/lap test specimen testing or schedule.
- Discuss preliminary views regarding the validation and/or correlation of test specimen CCI values (ASR expansion) to Seabrook reinforced concrete structure CCI measurements
- Discuss plans for out-of-plane deep pin monitoring at Seabrook Station
- Discuss potential impact on current Prompt Operability Determinations (e.g., any preliminary considerations for through-wall core bores at either Unit 1 or 2, additional visual inspections or examinations of structures without through-wall restraints (stirrups), etc.)
- Any preliminary changes in test program or beam fabrication?
- Provide insights on June CCI results.



Personnel in Attendance

Jim Connolly	Engineering Director
Mike O'Keefe	Licensing Manager
Rick Noble	Special Projects Manager
Ted Vassallo	ASR Monitoring Program Owner
Rick Cliche	License Renewal Project Manager

Two Potential Paths to Evaluate ASR Impacts

Evaluation using Mechanical Properties

- **Approach**
 - Determine concrete properties as function of cracking
 - Testing of cores
 - Published data
 - Use degraded properties in evaluations
- **Considerations**
 - Does not account for confinement
 - Results do not correlate to real structural performance of ASR impacted structures
 - Cores provide a "soda straw" view might miss larger impact
 - Cores are not an NDE technique

Evaluation using Structural Testing

- **Approach**
 - Determine impact of ASR based on testing of specific ASR-affected structural elements
 - Published data
 - Testing of structural elements representative of plant
 - Use data to adjust structural capacity
- **Considerations**
 - Limitations of published data
 - May not be representative of plant (scale, configuration)
 - Results not correlated to severity of ASR
 - Schedule for large-scale testing



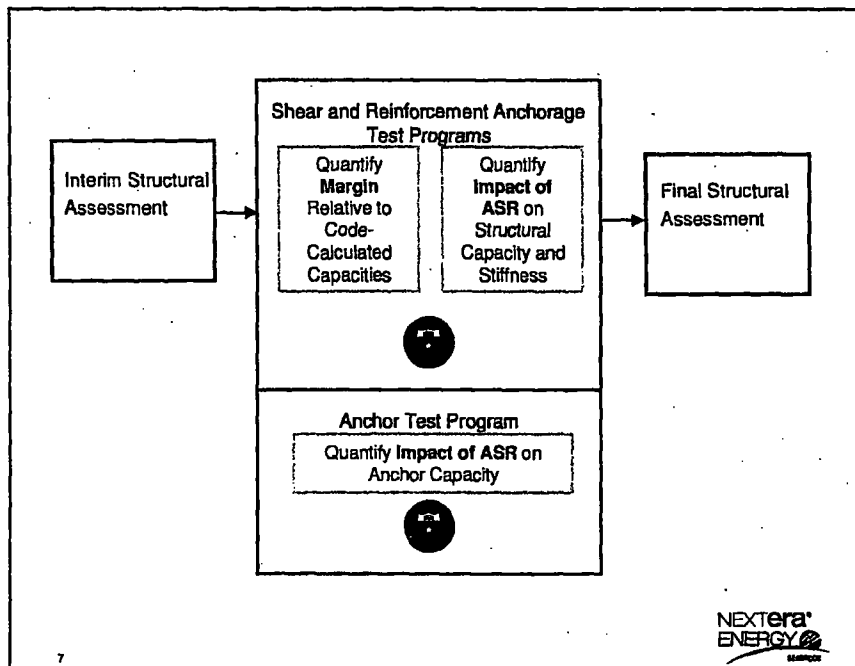
5

Large Scale Testing

- Large scale destructive testing of reinforced concrete beams with various levels of accelerated ASR is being conducted at the Ferguson Structural Engineering Lab at the University of Texas at Austin to determine the actual structural impact of ASR.
 - Test beams are representative of design details of Seabrook plant structures
 - Establish definitive correlation between level of ASR and structural performance. Separate test programs to evaluate:
 - Structural performance of walls and slabs, considering
 - Shear strength
 - Flexural stiffness
 - Reinforcement anchorage
 - Anchor bolt capacity



6



Monitoring

- Cracking due to expansion is the direct aging effect of ASR and the is most effectively measured parameter to monitor and trend the progression of ASR.
- The best parameter to correlate to the test specimens would be engineering strain, but cracking is the best surrogate for existing structures.
- Other NDE methods have been and are being investigated. However at this time alternate methods do not have a proven track record on their own and as such they are typically validated against the direct indications of cracking and expansion.

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NEXtera ENERGY

Monitoring Action Levels

- ASR monitoring action levels are based on a broad industry review of reinforced concrete structures outside the nuclear industry where the ASR problem has been observed.
- The action levels are intended to provide triggers for increased monitoring frequency and levels at which condition-specific structural evaluation should occur. They are intentionally not based on Seabrook only data as the plant has a variety of environmental conditions and levels of ASR. There is no singular Seabrook station condition and so the monitoring plan is best served by 50+ years of experience in ASR in the broader industry.
- The specific structural implications are significantly influenced by the actual structural details. The test specimens for the large-scale testing programs reflect Seabrook structural details



Evaluation of Structural Anchors

- Anchor Test program at University of Texas at Austin initiated to establish structural capability of anchors in ASR-affected concrete specimens
 - Girder Series—Complete
 - Used ASR-affected concrete specimens readily available
 - Studied phenomena related to anchor performance in ASR affected concrete
 - Block Series—In progress
 - Uses concrete specimens representative of Seabrook
 - Systematically quantify the impact of ASR on anchor capacity
- Girder Series Conclusions
 - Test conducted in "bone yard" bridge girders with heavy ASR impact show that ASR cracks do not affect anchors in any esoteric way, but rather behave as any cracked concrete would.
 - There are no new degradation or aging mechanism for anchor bolts, but rather cracking from ASR will need to be monitored and the structural impacts if any evaluated. This will be done with the proposed monitoring plan.



Questions?



Chaudhary, Suresh

From: Conte, Richard
Sent: Thursday, February 07, 2013 7:13 AM
To: Vassallo, Theodore
Cc: Cook, William; Raymond, William; Trapp, James; Chaudhary, Suresh; Floyd, Niklas
Subject: RE: FSAR Commitments for Concrete Expansion Anchors

Thanks Ted, got it.

Expanding cc

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Wednesday, February 06, 2013 12:51 PM
To: Conte, Richard; Cook, William; Raymond, William
Subject: FW: FSAR Commitments for Concrete Expansion Anchors

From: Das, Subhas
Sent: Thursday, January 31, 2013 10:31 AM
To: Vassallo, Theodore
Cc: Brown, Brian
Subject: FSAR Commitments for Concrete Expansion Anchors

**SEABROOK
STATION
UFSAR**

DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND
SYSTEMS
Mechanical Systems and Components
Revision 14
Section 3.9(B)
Page 40

(3) The stiffness values used for support design were:

Pipe size (OD, in.) Stiffness (lb./in.)

Up to 2½ 1x10⁴

2½ to 6 1x10⁵

Above 6 1x10⁶

In those cases where the support stiffness was less than that specified above, the piping analysis was reviewed to determine the impact on the component.

(4) Component supports are designed to be in the rigid range (natural frequency $f_n \geq 33$ Hz). In cases where the frequency is less than 33 Hz, the analysis of the piping system was reviewed to assure that the piping analysis remained valid.

(5) The thermal movement of the component at the support was accommodated through clearance included in the component support design.

(6) Component supports are connected to concrete walls and slabs by either welding to embedded plates, or by bolting to the concrete with either concrete expansion anchors (wedge type) or concrete inserts. The response to the NRC's IE Bulletin No. 79-02, (Reference 2), was used as a guide for the design of the concrete expansion anchors. The maximum allowable design loads for the concrete expansion anchors for ASME Class 1, 2, and 3 supports were developed using the manufacturer's ultimate loads and a safety factor of 4 for worst case loading (normal and upset or faulted loads).

Baseplate flexibility and shear-tension interaction were accounted for in the design of the concrete expansion anchors.

Chaudhary, Suresh

From: Conte, Richard
Sent: Tuesday, March 19, 2013 5:09 PM
To: Cook, William; Trapp, James; Raymond, William; Chaudhary, Suresh
Subject: FW: Analysis of Wall Deposits
Attachments: FP100538_000.pdf

This is as a result of my question to him about what is the nature of the white deposits on the walls.

We will have to connect to the information from Belgium on carbonation.

Suresh do these results surprise you based on what you seen on site, not sure you ever saw this report or if you did, you don't remember it.

From: Vassallo, Theodore [mailto:(b)(4)]@nexteraenergy.com
Sent: Tuesday, March 19, 2013 10:13 AM
To: Willoughby, Paul
Cc: Conte, Richard
Subject: Analysis of Wall Deposits

Paul;

Please up load the atatched MMR laboratory analysis of deposits removed from concrete walls at Seabrook.

ted

Chaudhary, Suresh

From: Conte, Richard
Sent: Thursday, February 28, 2013 9:18 AM
To: Farrar, Karl; McLaughlin, Marjorie; Holody, Daniel; Trapp, James; Dentel, Glenn; Cook, William; Raymond, William; Chaudhary, Suresh
Subject: FW: Feb. 28 Submittal for CAL No. 11

Interesting. Will they have met the commitment with only the redacted version? Missing important technical details.

We can tap into the Certrec system and get hard copy.

This decision about redacted vs. other is new to us this week also.

As soon as I get it I will send it and walk around hard copy of sensitive document.

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Thursday, February 28, 2013 8:51 AM
To: Conte, Richard
Subject: RE: Feb. 28 Submittal for CAL No. 11

we will be providing only the (b)(4)

(b)(4)

From: Conte, Richard [mailto:Richard.Conte@nrc.gov]
Sent: Thursday, February 28, 2013 8:26 AM
To: Willoughby, Paul; OKeefe, Michael
Cc: Trapp, James; Cook, William
Subject: Feb. 28 Submittal for CAL No. 11

Sometime today or tomorrow, can I get heads up pdf version of the redacted AND unredacted response that is due. You might want to password protect the unredacted version and call me for the password.

As I understand it, the submittal will have proprietary or trade secrets that you want to be withheld per 10 CFR 2.390. I assume you will have the required affidavit and reasons with proper markings per 2.390(b).

Rich Conte, Seabrook ASR Team Lead, Region I
(610) 337-5183 (Office)
(b)(6) (NRC cell)

Chaudhary, Suresh

From: Conte, Richard
Sent: Monday, April 01, 2013 9:50 AM
To: Buford, Angela; Cartwright, William; Chaudhary, Suresh; Cline, Leonard; Cook, William; Cruz, Holly; Dentel, Glenn; Erickson, Alice; Floyd, Niklas; Fuhrmann, Mark; Graves, Herman; Hogan, Rosemary; Hughey, John; Khanna, Meena; Kobetz, Timothy; Lamb, John; Manoly, Kamal; Marshall, Michael; McMurtray, Anthony; Merzke, Daniel; Milano, Patrick; Morey, Dennis; Ott, William; Philip, Jacob; Raymond, William; Sheikh, Abdul; Sircar, Madhumita; Stuchell, Sheldon; Thomas, George; Trapp, James; Barkley, Richard
Subject: FW: UFCR 13-001
Attachments: 20130401093850115.pdf

FYI

From: Vassallo, Theodore [mailto:(b)(4)]@nexteraenergy.com
Sent: Monday, April 01, 2013 9:44 AM
To: Willoughby, Paul
Cc: Conte, Richard; Noble, Rick
Subject: UFCR 13-001

Paul;

The attached document is the UFSAR change which add ASR to the Seabrook UFSAR. At the request of the NRC last Thursday, please add the attached document to Certrec.

Regards;

ted

Chaudhary, Suresh

From: Conte, Richard
Sent: Tuesday, February 05, 2013 7:07 AM
To: Raymond, William; Cook, William; Chaudhary, Suresh; Buford, Angela
Subject: FW: Color Concrete Anchor Dwgs
Attachments: IFR100763_001_3.pdf

These are the color drawings on a document that was recently uploaded to Certrec

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Monday, February 04, 2013 3:25 PM
To: Willoughby, Paul
Cc: Conte, Richard
Subject: Color Concrete Anchor Dwgs

Paul;

Please confirm that the attached color drawings are in Certrec. The copy that the NRC had last week at the University of Texas was black and white not color. To understand the anchor testing program, it is essential to have color copies of the drawings.

ted

Chaudhary, Suresh

From: Conte, Richard
Sent: Monday, February 04, 2013 1:59 PM
To: Raymond, William; Cook, William
Cc: Chaudhary, Suresh; Trapp, James; Buford, Angela; Floyd, Niklas
Subject: RE: Beam Testing Schedule
Attachments: ASR Working Group agrees that.docx

I know this is from Jan 24 and a copy was given out last week in Texas. I believe these dates are good to know and we need to resolve who in the agency will need them the most, especially if the CAL closed. There is also the thoughts that Bill Cook provided on Friday, I marked up his thoughts attached.

Let me know if there are problems using it on Wednesday with NextEra – one voice communications are important.

Verbally speaking it from top of heads is different from writing it down. Perhaps we should wait until after the working group meeting, but I feel comfortable exploring this with NextEra pending the results of staff review of 5059 and 5071(e) – hope to have results by the working group meeting, looks like tentatively we can't force a lic. Amendment now; something is needed per 5071(e) soon.

From: Raymond, William
Sent: Thursday, January 24, 2013 4:54 PM
To: Cook, William; Conte, Richard
Cc: Chaudhary, Suresh; Trapp, James; Buford, Angela; Floyd, Niklas
Subject: FW: Beam Testing Schedule

Here is the latest NextEra reported on schedule.
Bill

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Thursday, January 24, 2013 2:15 PM
To: Raymond, William
Subject: Beam Testing Schedule

Bill;

Attached is the latest schedule from MPR for the beam testing programs at UT-A.

ted

Chaudhary, Suresh

From: Conte, Richard
Sent: Monday, March 04, 2013 11:38 AM
To: Buford, Angela; Cartwright, William; Chaudhary, Suresh; Cline, Leonard; Cook, William; Cruz, Holly; Erickson, Alice; Floyd, Niklas; Fuhrmann, Mark; Graves, Herman; Hogan, Rosemary; Hughey, John; Khanna, Meena; Kobetz, Timothy; Lamb, John; Manoly, Kamal; Marshall, Michael; McMurtray, Anthony; Merzke, Daniel; Milano, Patrick; Morey, Dennis; Ott, William; Philip, Jacob; Raymond, William; Schroeder, Daniel; Sheikh, Abdul; Sircar, Madhumita; Stuchell, Sheldon; Thomas, George; Trapp, James
Cc: Case, Michael; Cheok, Michael; Clifford, James; Correia, Richard; Delligatti, Mark; Evans, Michele; Galloway, Melanie; Hilland, Patrick; Lubinski, John; Lund, Louise; Miller, Chris; Nieh, Ho; Roberts, Darrell; Trapp, James; Wilson, Peter; Dacus, Eugene; McNamara, Nancy; Screnci, Diane; Sheehan, Neil; Tiff, Doug; Dean, Bill; Lew, David; Holody, Daniel
Subject: NextEra Response to CAL No. 11 -
Attachments: SBK-L-13027 CAL Response - Anchor Test Program 022813.pdf

Here is the response to the CAL No. 11, submit technical details for the Anchor Test Program. They consider certain sections proprietary but they are promising a more complete package by March 15. We will need to consult if a FOIA comes in right now.

In the interim, the inspection team and working group will need to further digest. There is a working group meeting scheduled for March 13, 2013.

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Monday, March 04, 2013 10:26 AM
To: Conte, Richard
Cc: Noble, Rick; Brown, Brian; Vassallo, Theodore
Subject: RE: You Guys Working Today?

see attached. (b)(4)

From: Conte, Richard [mailto:Richard.Conte@nrc.gov]
Sent: Friday, March 01, 2013 4:41 PM
To: Willoughby, Paul
Cc: Noble, Rick; OKeefe, Michael
Subject: You Guys Working Today?

Is the response out yet on the CAL No.11 item due 2/28/13. Can I get a hea

Rich Conte, Seabrook ASR Team Lead, Region I
(610) 337-5183 (Office)
(b)(6) (NRC cell)

Chaudhary, Suresh

From: Conte, Richard
Sent: Friday, January 04, 2013 12:52 PM
To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard
Cc: Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas; Erickson, Alice; Trapp, James
Subject: RE: NRC Conference Call - ASR

Can you update this agenda to the latest, 9th item is add on for NextEra view on who is the Building Code Official.

Please invite NRC staff above.

-----Original Appointment-----

From: Willoughby, Paul
Sent: Thursday, December 20, 2012 1:39 PM
To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard; Conte, Richard; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas
Subject: NRC Conference Call - ASR
When: Wednesday, January 09, 2013 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).
Where: OSB - Engineering Managers Conference Room (Tentative)

call in number (b)(6) passcode (b)(6)

Agenda:

1. Continue dialog on R&D for Shear and Lap-splice (CAL#8)
2. Continue dialog on R&D for Embedment and Anchor Bolt Testing (CAL#11):
3. Related question: Ted and Bill R. were to get together and ID spec for this – ID 66 and 67 on Certrec, ID Foreign Print?
4. In light of latest CAL letter to submit detailed plans by Feb. 28, 2013, how can you start testing in this area before then?
5. Any update to schedule completion for Phase III Walkdown and Baseline Primary Containment for ASR
6. Please ID dates for IAEA review to avoid inspection week conflicts – ASR group will most likely do last full week of the month starting Jan. 28 – we will need to coordinate on NRC teams also.
7. Chaudhary and Conte would like to go to U of T for a QA review on actions to date and familiarization visit the week of Jan. 22 – bad time? or is the week of Feb. 4 better – Suresh is unavailable the week of Jan. 14 and Jan 28.
8. Finally, when will the RCE revision (CAL # 2) be in.
- 9.

Chaudhary, Suresh

From: Raymond, William
Sent: Tuesday, March 19, 2013 12:11 PM
To: 'Willoughby, Paul'; Conte, Richard; Cooper, Timothy; Buford, Angela; Floyd, Niklas; Chaudhary, Suresh
Cc: Vassallo, Theodore; Brown, Brian; Noble, Rick; OKeefe, Michael
Subject: RE: SG&H Crack Indexing Report

Thanks, Paul.

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Tuesday, March 19, 2013 9:11 AM
To: Raymond, William; Conte, Richard; Cooper, Timothy; Buford, Angela; Floyd, Niklas; Chaudhary, Suresh
Cc: Vassallo, Theodore; Brown, Brian; Noble, Rick; OKeefe, Michael
Subject: RE: SG&H Crack Indexing Report

crack indexing report & ASR expansion measuring report have been uploaded to CERTREC

From: Raymond, William [mailto:William.Raymond@nrc.gov]
Sent: Tuesday, March 19, 2013 9:06 AM
To: Vassallo, Theodore
Cc: Willoughby, Paul
Subject: RE: SG&H Crack Indexing Report

thanks

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Tuesday, March 19, 2013 8:43 AM
To: Raymond, William
Cc: Willoughby, Paul
Subject: RE: SG&H Crack Indexing Report

I will have paper copies available next week and up load this week into Certrec.

ted

From: Raymond, William [mailto:William.Raymond@nrc.gov]
Sent: Tuesday, March 19, 2013 8:08 AM
To: Vassallo, Theodore
Cc: Conte, Richard
Subject: RE: SG&H Crack Indexing Report

Thanks, Ted. I would like a paper copy next week when I am onsite with the Team. I am having problems with remote access so I cannot see them in NAMS. Please upload the reports to Certrec. I will take a preliminary look when available. I am on travel to DC and cannot come to the site this week.
Thanks,
Bill

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Monday, March 18, 2013 3:17 PM

To: Raymond, William
Cc: Conte, Richard
Subject: SG&H Crack Indexing Report

Bill;

I just signed foreign print no. 100811 the SG&H 6-month crack indexing report and foreign print no. 100812 the corresponding ASR expansion measurement report. Both reports should be in NAMS tomorrow afternoon. Please advise if you need paper copies for your files. After I confirm that the reports are in NAMS, I will request Paul W to upload the reports into Certrec.

Regards,

ted

Chaudhary, Suresh

From: Conte, Richard
Sent: Thursday, January 03, 2013 1:28 PM
To: Vassallo, Theodore
Cc: Cook, William; Buford, Angela; Chaudhary, Suresh; Raymond, William
Subject: RE: Request Change to Agenda RE: NRC Conference Call - ASR

Thanks. To start out with please see below, Angie and Suresh my need others.

We most likely would start off by reviewing any test records used to support the past PODs such as the anchor/embedment testing using the so called "graveyard" material.

We would also review any QA documents that have been established between NextEra, MRP and UofT including purchase orders short of financial arrangements (can be expunged).

Records associated with the specimen selection and construction plans for the specimens to be constructed or already constructed such as for the anchor bolt/embedment testing.

Are the following documents the specs that will be used to formulate the R&D testing plans to be a part of the CAL item to be submitted by Feb. 28, 2013 and can you have them available .

1. FP 100719 (Certrec ID 67) "Commercial Grade Dedication Report for Initial Anchor Testing
2. FP100718 (Certrec ID 66) "Anchor Test Report - MPR 3722 Strength Testing in Concrete Affected by ASR

[redacted]
From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Thursday, January 03, 2013 11:49 AM
To: Conte, Richard
Subject: RE: Request Change to Agenda RE: NRC Conference Call - ASR

MPR and Seabrook staff do stay at the Hampton Inn at 3908 Breaker Lane (512-349-9898), \$171.35 per night with breakfast and only a few blocks from the FSEL. If all travel pains goes well, I will be at the hotel at noon.

ted

From: Conte, Richard [mailto:Richard.Conte@nrc.gov]
Sent: Thursday, January 03, 2013 9:40 AM
To: Vassallo, Theodore
Cc: Brown, Brian; Noble, Rick; Raymond, William; Buford, Angela
Subject: RE: Request Change to Agenda RE: NRC Conference Call - ASR

This sounds great, Angie and I may be getting in the mid afternoon of Monday and Suresh will join up by noon on Tuesday. We can go to an entrance on Monday afternoon and we can start looking at any records we ask for (beforehand) on Tuesday. Maybe tour on Tuesday afternoon when Suresh gets there.

As a I recall you stay at the nearby Hampton Inn.

[redacted]
From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Thursday, January 03, 2013 8:49 AM
To: Conte, Richard

Cc: Brown, Brian; Noble, Rick; Raymond, William
Subject: RE: Request Change to Agenda RE: NRC Conference Call - ASR

Rich;

I have confirmed that MPR Associates and the University of Texas at Austin FSEL can accommodate the NRC inspection team the week of 1/28/13, with the NRC arriving at FSEL on 1/29/13. Do you have an exit date in mind? I will arrive in Austin on Monday, 1/28 and returning to Boston on a 6:30 PM flight on Thursday, 1/31/13. Since I booked early the round trip Jet Blue ticket was only \$257.00.

Next Tuesday 1/8/13, I will have a list of activities that will be in progress at the FSEL the week of 1/28. I will share this information during the NRC/NextEra call on Wednesday, 1/9/13 so that you can plan your inspection activities. I would also gladly suggest the foreign printed documents that the NRC may want to review to support your activities at FSEL.

I believe that I previously sent you the list of local hotels, restaurants and a map of the area. If you need another copy of these documents just let me know.

Regards,

ted

From: Conte, Richard [mailto:Richard.Conte@nrc.gov]
Sent: Wednesday, January 02, 2013 9:20 AM
To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas; Trapp, James
Subject: Request Change to Agenda RE: NRC Conference Call - ASR

Would like to change agenda in light of recent developments.

Please check on available for Texas personnel for inspection by Suresh, Angie and myself the week of 1/28 most likely arrive on Tuesday AM 1/29.

New question added to No. 9.

call in number (b)(6) passcode (b)(6)

Agenda:

1. Continue dialog on R&D for Shear and Lap-splice (CAL#8)
2. Continue dialog on R&D for Embedment and Anchor Bolt Testing (CAL#11):
3. Related question for item 2 as to what are the testing specifications: Ted and Bill R. were to get together and ID spec for this – ID 66 and 67 on Certrec, ID Foreign Print?
4. In light of latest CAL letter to submit detailed plans by Feb. 28, 2013, how can you start testing in this area before then?
5. Any update to schedule completion for Phase III Walkdown and Baseline Primary Containment for ASR
6. Please ID dates for IAEA review to avoid inspection week conflicts – ASR group will most likely do last full week of the month starting Jan. 28 – we will need to coordinate on NRC teams also.
7. Chaudhary, Buford, and Conte would like to go to U of T for a Quality Assurance review on actions to date and familiarization visit the week of Jan. 28 – bad time? or is the week of Feb. 4 or Feb. 11 better.
8. Finally, when will the RCE revision (CAL # 2) be in.

9. NEW: Any developments on questions raised from last call as to who the Building Code Official is per ACI 318 section 1 from a NextEra perspective.

-----Original Appointment-----

From: Willoughby, Paul

Sent: Thursday, December 20, 2012 1:39 PM

To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard; Conte, Richard; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas

Subject: NRC Conference Call - ASR

When: Wednesday, January 09, 2013 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).

Where: OSB - Engineering Managers Conference Room (Tentative)

call in number (b)(6) passcode (b)(6)

Agenda:

1. Continue dialog on R&D for Shear and Lap-splice (CAL#8)
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8. Finally, when will the RCE revision (CAL # 2) be in.
- 9.

Chaudhary, Suresh

From: Conte, Richard
Sent: Wednesday, January 02, 2013 9:20 AM
To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas; Trapp, James
Subject: Request Change to Agenda RE: NRC Conference Call - ASR

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From: Willoughby, Paul
Sent: Thursday, December 20, 2012 1:39 PM
To: Willoughby, Paul; Noble, Rick; Vassallo, Theodore; Brown, Brian; OKeefe, Michael; Cliche, Richard; Conte, Richard; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas
Subject: NRC Conference Call - ASR
When: Wednesday, January 09, 2013 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).
Where: OSB - Engineering Managers Conference Room (Tentative)

Call in number (b)(6) passcode (b)(6)

Agenda:

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12. Related question: Ted and Bill R. were to get together and ID spec for this – ID 66 and 67 on Certrec, ID Foreign Print?
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17. Finally, when will the RCE revision (CAL # 2) be in.
- 18.

Chaudhary, Suresh

From: Raymond, William
Sent: Friday, November 02, 2012 2:53 PM
To: Chaudhary, Suresh; Thomas, George
Cc: Miller, Chris; Trapp, James
Subject: FW: Upload to CERTREC

As promised...

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Friday, November 02, 2012 2:42 PM
To: Raymond, William; Cook, William; Conte, Richard; Buford, Angela
Cc: Noble, Rick; Brown, Brian; Vassallo, Theodore
Subject: Upload to CERTREC

AR 1804477 Prompt Operability Determination for Containment Structure has been uploaded to CERTREC.

(b)(4)

Chaudhary, Suresh

From: Raymond, William
Sent: Friday, June 08, 2012 4:27 PM
To: Conte, Richard; Burritt, Arthur; Chaudhary, Suresh; Cline, Leonard; Cruz, Holly; Cunanan, Arthur; Erickson, Alice; Jolicoeur, John; Khanna, Meena; Lamb, John; Manoly, Kamal; Marshall, Michael; Merzke, Daniel; Morey, Dennis; Murphy, Martin; Sheikh, Abdul; Thomas, George
Subject: RE: CAL Response - ASR

My first impression...it's a bit disappointing relative to lack of detail and new information.
We'll see what a more thorough review produces....
Bill

From: Conte, Richard
Sent: Friday, June 08, 2012 4:17 PM
To: Burritt, Arthur; Chaudhary, Suresh; Cline, Leonard; Conte, Richard; Cruz, Holly; Cunanan, Arthur; Erickson, Alice; Jolicoeur, John; Khanna, Meena; Lamb, John; Manoly, Kamal; Marshall, Michael; Merzke, Daniel; Morey, Dennis; Murphy, Martin; Raymond, William; Sheikh, Abdul; Thomas, George
Subject: FW: CAL Response - ASR

Interesting, we got integrated corrective action plan on the same day we issued the SER. It was the thing we have been asking for since October 2010. Now how good is it.

From: Willoughby, Paul [mailto:(b)(4)@fpl.com]
Sent: Friday, June 08, 2012 2:51 PM
To: Conte, Richard
Cc: Raymond, William; DeBoer, Joseph
Subject: CAL Response - ASR

Rich

CAL Response with corrective action plan attached.

Paul

(b)(4)

Chaudhary, Suresh

From: Raymond, William
Sent: Friday, April 13, 2012 9:49 AM
To: Conte, Richard; Chaudhary, Suresh; Thomas, George; Sheikh, Abdul
Subject: MPR ASR Walkdown Report on Certrec

NextEra put the entire ASR walkdown report on Certrec. It is worth your time to peruse the 1300+ page document to get a feel for the extent of the patterned cracking and presumptive ASR around the site (23 locations). In particular, see the rollup summary of where ASR cracking patterns is present (Table 2-1), as well as the pictures/data sheets from various plant areas. Note the patterned cracking is being reported in concrete structures both below and above grade.

You might also be interested in the petrographer's report R-151 concerning the craze cracking deposits in the containment building, which can be found on pages 103-112 of the MPR document.

As of this morning, NextEra is still reviewing and resolving comments on the MRF Engineering Evaluation. I am told it may be available on their internal network by this weekend.

Bill

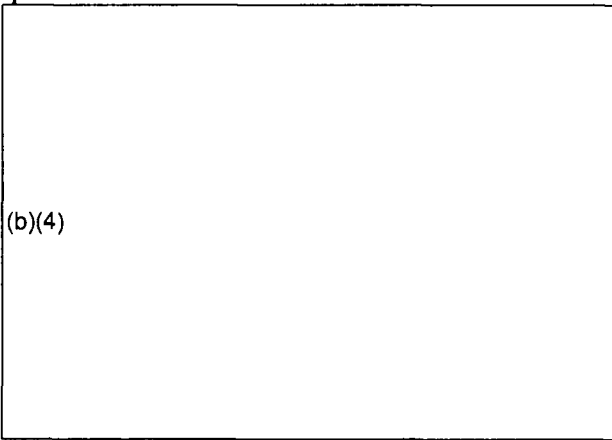


From: Willoughby, Paul (mailto:[(b)(4)]@fppl.com]
Sent: Friday, April 13, 2012 9:29 AM
To: Raymond, William
Cc: Conte, Richard; Collins, Michael; OKeefe, Michael; Vassallo, Theodore; Brown, Brian; Cliche, Richard
Subject: ASR Walkdown Data

Bill

The ASR walkdown data, FP100705 has been uploaded to CERTREC per your request.

Paul



Trapp, James

From: Willoughby, Paul <(b)(4)>@nexteraenergy.com>
Sent: Tuesday, September 17, 2013 7:02 AM
To: Trapp, James; Cook, William; Raymond, William; Floyd, Niklas; Buford, Angela
Cc: Vassallo, Theodore; Noble, Rick; Brown, Brian
Subject: Upload to CERTREC

FP100831 June 2013 ASR Expansion Data has been uploaded to CERTREC

(b)(4)

Trapp, James

From: Willoughby, Paul <(b)(4)@nexteraenergy.com>
Sent: Monday, September 09, 2013 10:31 AM
To: Trapp, James; Cook, William; Raymond, William; Floyd, Niklas; Buford, Angela
Cc: Vassallo, Theodore; Noble, Rick; Brown, Brian; Ossing, Michael
Subject: Upload to CERTREC

Walkdown Assessment Phase 3 Rooms has been uploaded to CERTREC

(b)(4)

Trapp, James

From: Cook, William
Sent: Friday, August 23, 2013 2:14 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Raymond, William; Buford, Angela; Floyd, Niklas; Marshall, Michael; McMurtray, Anthony; Cataldo, Paul; Plasse, Richard; Lamb, John; Dentel, Glenn; Chaudhary, Suresh
Subject: RE: ASR Conference Call

Rick, Ted and Paul,



Attached is our proposed agenda for the call. Please feel free to add other items as you see fit.

Thanks,
Bill

-----Original Appointment-----

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Wednesday, August 21, 2013 5:31 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Cook, William; Raymond, William; Buford, Angela; Floyd, Niklas
Subject: ASR Conference Call
When: Wednesday, August 28, 2013 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: SBK-IPC-2-ConferenceRoom

Call in number (b)(6) passcode (b)(6)

Agenda
NextEra to provide update on testing

UFSAR Change Request

1. UFCR No. 13-011	2. Source Document AR 1758920	3. Date 03/04/13	4. Sheet <u>1 of 7</u> Rev. <u>00</u>
5. UFCR Title: Addition of a Description of Alkali Silica Reaction (ASR)			
6. Originator: (b)(4)		7. Originator's Organization: Design Engineering	
8. Completed applicable 10 CFR 50.59 Resource Manual form attached <input checked="" type="checkbox"/> Engineering Change Analysis Review attached <input type="checkbox"/> (If required for standalone change, see NARC Chapter 6, §1.7.1, Step 5)			
9. Affected Sections, Tables, and/or Figures (list below and attach mark-ups)			
SECTIONS: 3.8.1.6, a add one new sentence, 3.8.4.6, add four new paragraphs, 3.8.6 add one reference number 6, (see 4 pages attached).			
TABLES			
FIGURES		DRAWING NO.	
10. Reasons/Justifications for Change			
10 CFR 50.71(e)			
11. References			
10 CFR 50.71(e)			
12. Review Comments/Resolutions (use additional sheets as necessary)			

UFSAR Change Request
(Continued)

UFCR No. 13-011 -

Sheet 2 of 7

13. Review Organization

Reviewed By/Date:

ASR Project Manager

14.	(b)(4)	Originator
15.	(b)(4)	Originator's Group Manager
16.	(b)(4)	Director of Engineering / Engineering Manager
17.	(b)(4)	Licensing Manager (Note 1)

3/12/13
Date

3/12/13
Date

3/12/13
Date

3/12/13
Date

18. SORC Meeting No. _____

Plant General Manager

Date

Note 1: Changes to the COLR must be submitted to the NRC.

SEABROOK STATION UFSAR	DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND SYSTEMS Design of Category I Structures	Revision 12 Section 3.8 Page 48
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The maximum slump permitted in mass concrete for the containment was 3", except in congested areas where a 4" slump was allowed to accommodate proper placement, with slumps greater than 4" but not more than 6" (Special High Slump Concrete) used in highly congested areas. The maximum slump for concrete utilizing a superplasticizer (high range water reducer) was 8" (9" on a case-by-case basis). The maximum slump permitted for all other concrete was 4".

No aluminum materials were used in the mixing, handling, storing, transporting, or placing of concrete materials or mixes, nor were any aluminum embedments used.

The maximum concrete mix temperature during placement was 80°F.

All concrete operations during cold weather conditions followed the practice defined in ACI 301 and 306R-78 except that concrete as placed shall not be lower than 45°F. Concrete was maintained at 50°F.

During cold weather curing of the concrete, concrete surfaces whose temperatures are below 50°F by accident for short periods of time, but remain 40°F or above, have had the 7-day curing period extended by the amount of time the concrete was below 50°F (rounded out to the nearest whole day).

b. Reinforcing Steel

Reinforcing steel consists of high-strength deformed billet steel bars conforming to ASTM A615, Grade 60. This steel has a minimum yield strength of 60,000 psi, a minimum tensile strength of 90,000 psi and a minimum elongation of 7 percent in an 8" gage length.

In addition to the Certified Material Test Reports, user tests, as required by Division 2 and Regulatory Guide 1.15, were performed by the Material Manufacturer on full-size diameter test specimens to further verify the physical properties of the rebar.

Arc welding of rebar was not permitted.

All reinforcing bars were detailed by the Manufacturer in accordance with the requirements of the Design Drawings. Detail drawings were reviewed by the Designer.

INSERT

ALKALI-SILICA REACTION IS
DISCUSSED IN SUBSECTION 3.8.4.6.

SEABROOK STATION UFSAR	DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND SYSTEMS Design of Category I Structures	Revision 12 Section 3.8 Page 152
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Variations in stress and strain, due to scheduled plant shutdowns and startups, have negligible effect on the overall structural behavior because of the small variation in the average structure temperature and loading. Since the designs of the structures were governed by extreme, infrequently occurring loadings, such as tornadoes and earthquakes, and normal cyclical changes in stress levels are comparatively small, no reduction in the margin of safety will occur over the life of the plant.

All connections and joints were designed to transfer all design forces (shear, tension and compression) and moments with a safety margin and degree of conservatism that is required by the applicable code.

e. Stability

Acceptance criteria for stability are given in Subsection 3.8.5.5.

3.8.4.6 Materials, Quality Control and Special Construction Techniques

The primary materials of construction are concrete, reinforcing steel and structural steel (rolled shapes and plates).

Descriptions of the materials and basic quality control procedures are discussed in Subsection 3.8.3.6.

INSERT
NEXT
PAGE →

3.8.4.7 Testing and In-Service Surveillance Requirements

Normal quality control testing is discussed in Subsection 3.8.3.6. A general visual inspection of the exposed accessible interior and exterior surfaces of the Containment Enclosure Building will be periodically conducted as discussed in Subsection 6.2.6.1.

3.8.5 Foundations

The following sections discuss the physical descriptions of the foundations, applicable codes, standards and specifications; loads and load combinations, design and analysis procedures, structural acceptance criteria, materials, quality control and special construction techniques, and testing and in-service inspection requirements for the foundations of seismic Category I structures.

UFSAR Update:

INSERT INTO SUBSECTION 3.8.4.6

Alkali-aggregate reactions (AAR) occur over time in hardened concrete between the alkali hydroxides in the pore solution of concrete and certain minerals found in some aggregates. Alkali Silica Reaction (ASR) is the predominant type of AAR. It involves a chemical reaction between alkalis in the cement paste (Portland cement) and reactive forms of silica in the aggregates. This reaction is dependant on several factors including; the amount and form of reactive material in the aggregate (e.g. reactive forms of quartz), the amount of alkali in the cement (more alkali - faster reaction), temperature (higher temperature higher reaction rate), and moisture content. The reaction forms an expansive gel in the affected material. As the reaction progresses and the gels expand, micro-cracks are formed in the aggregate extending into the cement paste. The main observable affect of ASR affected structures is expansion and cracking due to gel formation. As expansions increase, visible cracks begin to form on the exposed surfaces. These cracks are often in a characteristic pattern cracking and may also have signs of ASR gel material. While very reactive aggregates can cause rapid expansion rates that manifest in visible cracks and measurable expansion rates in a few years, ASTM testing for reactive aggregates and specification of low alkali cement has been somewhat effective in preventing ASR in these time frames. Slow reacting aggregates may not manifest for decades. The concrete constituents used at Seabrook would not be expected to be susceptible to ASR since:

1. the coarse aggregate is largely igneous rock that was routinely tested during construction and passed petrographic examinations and expansive reaction tests that normally detect alkali-silica reaction; and
2. low-alkali Portland cement was abundantly used.

Aggregates routinely passed ASTM reactivity and expansion tests per C227 and C289. Petrographic examinations of aggregates per C295 were performed but did not detect presence of reactive aggregates. In retrospect, the testing standards in place at the time of original construction may not accurately predict late or slow reactive aggregates. Empirical evidence at Seabrook suggests the coarse aggregates are the slow reactive type.

In June 2010, concrete core were removed for examination and testing from the walls of the lower electrical tunnel in the Control Building, as part of preparations for license renewal inspections. The purpose was to evaluate potential concrete aging effects in below grade areas of the plant that had been subjected to historical groundwater wetting of the concrete. In general the removed cores showed the expected quality materials and placements from original construction. There were no obvious visual signs of aging distress or concrete degradation. Petrographic examinations were performed which involved sectioning and polishing the core samples and analysis under magnification by a qualified professional petrographer. This analysis revealed micro cracks and other features indicative of Alkali Silica Reaction (ASR). Materials testing of the removed cores also resulted in lower than expected mechanical properties consistent with low levels of ASR. The impact of ASR in the material strength testing of removed cores is not indicative of actual insitu performance and cannot be directly correlated to actual structural impact. Once removed from the structural context (e.g. reinforcement or confining loads) the behavior of the cores no longer reflects that of the confined structure.

Additional concrete core sampling has been performed to determine the extent of condition both from the perspective of additional areas that might be affected by ASR and also the extent of ASR degradation within a given area and control areas (non-wetted adjacent areas). Subject Matter Experts from around the country were consulted and a specific monitoring and action plans for ASR was added to the Structural Monitoring Program. Engineering evaluations that were performed and documented in foreign print 100716, (Subsection 3.8.6, Ref. 6) established that although the concrete can be considered degraded, the structures and embedded concrete anchors are capable of performing all required design basis functions. ASR is considered to be a degraded nonconforming condition pursuant to Regulatory Issue Summary (RIS) 2005-20. An operability determination was performed which

established reasonable assurances that the structures and embedded/drilled-in concrete anchors are capable of performing all required design basis functions. Design basis calculations will be reconciled to account for ASR following completion of the actions delineated in the ASR corrective action plan.

SEABROOK STATION UFSAR	DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT AND SYSTEMS Design of Category I Structures	Revision 12 Section 3.8 Page 158
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3.8.5.6 Materials, Quality Control and Special Construction Techniques

The primary materials of construction are concrete and reinforcing steel. Their descriptions and basic quality control procedures are discussed in Subsections 3.8.1.6 and 3.8.4.6 for the containment foundation and other seismic Category I structure foundations, respectively. Engineered fill, fill concrete and backfill concrete are described in Subsection 2.5.4.5.

There are no special construction techniques.

3.8.5.7 Testing and In-Service Surveillance Requirements

The ability of the containment foundation to resist 1.15 times the design pressure is demonstrated during the structural integrity test as described in Subsection 3.8.1.7.

For other seismic Category I structure foundations, no preoperational or in-service surveillance is required.

Structures which are founded on sound rock or on fill concrete over sound rock do not have any potential areas of settlement or displacement which should be monitored. Similarly, gradation requirements, compaction criteria and compaction tests for engineered fill ensure a foundation material which will support the design loads with negligible settlement. Piles were not used. For these reasons there are no potential settlements or displacements which should be monitored for any foundation.

3.8.6 References

1. Wilson, B.L., "Structural Analysis of Axisymmetric Solids," AIAAJ, Vol 3, No. 12 (1965) pp. 163-182.
2. Wilson, B.L., "A Digital Computer Program for the Finite Element Analysis of Axisymmetric Solids with Orthotropic, Nonlinear Material Properties," November 1969.
3. Duchon, N.B., "Analysis of Reinforced Concrete Membrane Subject to Tension and Shear," ACI Journal, September, 1972, pp. 578-583.
4. Wilson, E.L. and Nicholl, R.B., "Application of the Finite Element Method to Heat Conduction Analysis," Journal of Nuclear Engineering and Design, Vol. 4, 1966.
5. Alexandria, S. C., Effects of Irradiation of Concrete, Final Results, Research Reactor Division UKAEA, Harwell, AERE-R-4490, December 1963.

6. FOREIGN PRINT 100716, MPR REPORT MPR-3727,

INSERT → SEABROOK STATION IMPACT OF ALKALI-SILICA REACTION
ON CONCRETE STRUCTURES AND ATTACHMENTS

Applicability Determination

Activity/Document Number: UFCR 13-011	Revision Number: 00	Chg.:
Title: Addition of a Description of Alkali Silica Reaction (ASR)		
Brief Description of activity (what is being changed and why):		Addition of a description of Alkali Silica
Reaction (ASR) to the UFSAR as required by 10CFR 50.71(e)		

Address the questions below for all aspects of the activity. If the answer is yes for any portion of the activity, apply the identified process(es) to that portion of the activity. Note that it is not unusual to have more than one process apply to a given activity. See Section 4.0 of the 10 CFR 50.59 Resource Manual (5059RM) for additional guidance.

1. Does the proposed activity require a change to the Technical Specifications or Operating License including the Environmental Protection Plan?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NARC for License Amendment Requests.
2. Is the acceptability of the proposed activity governed in whole or in part by the requirements of:		
		See §4.2 of the 5059RM
a. Quality Assurance Plan (see 10 CFR 50.54[a])?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NA-AA-210-1000 for QAP and related facility or procedure changes.
b. Security Plan (see 10 CFR 50.54[p])?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NARC for Security Plan and related facility or procedure changes.
c. Emergency Plan (see 10 CFR 50.54[q])?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NARC for Emergency Plan and related facility or procedure changes.
d. IST Program Plan (see 10 CFR 50.55a[f])?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per SLTR/SLTR for ASME code compliance and related facility or procedure changes.
e. ISI Program Plan (see 10 CFR 50.55a[g])?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per MA 6.1 for ASME code compliance and related facility or procedure changes.
f. Fire protection program (see applicable license condition)?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per SFFP for Fire Protection Program changes.
g. Does the activity affect other plant-specific programs (e.g., the ODCM) which are controlled by regulations, the Operating License, the Technical Specifications or the Environmental Protection Plan? (see §4.2 of the 5059RM)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per the procedure(s) for the appropriate activity. See page 3 of this form.
3. Does the proposed activity involve:		
		See §4.2 of the 5059RM
a. Maintenance that restores SSCs to their original condition or a temporary alteration supporting maintenance that will be in effect during at-power operations for 90 days or less? (see §4.2.2 of the 5059RM)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NAWM/SSMA or applicable administrative control procedures for revising procedures.
b. A change to the UFSAR excluded from the requirement to perform a 50.59 Review by Reg. Guide 1.187 (NEI 96-07, Rev. 01) or Reg. Guide 1.181 (NEI 98-03) (see §4.2 of the 5059RM)?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NARC for revising the UFSAR.
c. A change to managerial or administrative procedures governing the conduct of facility operations subject to the control of 10 CFR 50, Appendix B?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per applicable administrative control procedures for revising procedures.
d. A change to a regulatory commitment not covered by another regulation based change process (see NEI 99-04)?	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per NARC for commitment management.
e. Perform 10 CFR 72.48 Pre-Screening (page 2). Does the activity affect the dry fuel storage Certificate of Compliance or Design Basis? (see §4.2.6 of the 5059RM)	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	If YES process per DFSM, 10 CFR 72.48 review process.

All aspects of the activity are controlled by one or more of the processes above; therefore, a 50.59 Screen is not required.

Any portion of the activity is not controlled by one or more of the processes above; therefore, a 50.59 Screen is required and should be initiated by completing the 50.59 Screen.

Signoffs: Preparer: (Print)	(b)(4)	(Sign)	(b)(4)	Date: 3/12/13
Reviewer: (Print)	(b)(4)	(Sign)	(b)(4)	Date: 3/12/13

Applicability Determination
10 CFR 72.48 PRE-SCREENING

Screening # _____
 (If applicable)

Activity/Document Number: UFCR 13-011	Revision Number: 00	Chg.: _____
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A YES answer to any of the following 10 CFR 72.48 Pre-Screening questions requires that a 10 CFR 72.48 Screen be performed in accordance with the Dry Fuel Storage Manual (DFSMS).

YES NO QUESTION

- Does the proposed change/activity involve, in any manner, the dry spent fuel storage cask, the cask transfer/transport equipment, any Dry Fuel Storage Facility SSC(s), or the Certificate of Compliance No. 1030 for the NUHOMS® HD System?
- Does the proposed change/activity involve, in any manner, SSC(s) installed in the plant specifically to support the dry spent fuel storage cask loading/unloading activities?
- Does the proposed change/activity involve in any manner the design function, method of performing or controlling the function, or an evaluation that demonstrates that intended function will be accomplished for SSC(s)¹ needed for plant operation which are also used to support dry spent fuel storage cask loading/unloading activities or Dry Fuel Storage Facility monitoring?
- Does the proposed change/activity involve changes to site-specific design criteria for external events such as earthquakes, tornadoes, high winds, flooding, etc.?
- Does the change/activity involve changes to plant heavy load program requirements?
- Does the change/activity involve any potential for fire or explosion hazard(s) where dry spent fuel storage casks are loaded, unloaded, transported, or stored?

¹ Examples of Dry Fuel Storage loading/unloading and/or DFS Facility interfaces with the 10 CFR 50 Facility SSCs:

Systems:

- Fuel Handling Equipment
- Spent Fuel Pool Cooling
- Demineralized Water (within FSB)
- Fuel Storage Building Air Handling
- Waste Processing Liquid Drains
- Security and Fire Detection

Structures:

- Fuel Storage Building
- Cask Loading Pool
- Cask Loading Platform
- Cask Preparation Area
- Cask Welding Platform
- Dry Fuel Storage Haul Path

Components:

- 1-FH-RE-1
- 1-FH-RE-2
- MCC-123
- MCC-513

Applicability Determination

(This page is not required for RMD transmittal)

Manual/Procedure Reference for Changes Applicable to Item 2g on page 1

<u>Subject</u>	<u>Manual/Procedure</u>
Offsite Dose Calculation Manual	ODCM / T.S. 6.13
Process Control Program	JD0999.913 / T.S. 6.12
Radiation Protection Program	JD0999.913
Licensed Operator Requalification Program	NAQM
Operability Determination	EN-AA-203-1001
Environmental Compliance Program	NABC, Chapter 5
Core Operating Limits Report	RCMM / T.S. 6.8.1.6
10 CFR 50.46 Acceptance Criteria	NARC, Chapter 3 / RCMM
10 CFR 50.12 Specific Exemptions	NARC, Chapter 4
Maintenance Program	NAWM / SSMA

50.59 Screen

50.59 Screen No. <u>13-054</u> Rev. No. <u>00</u> (P:\ACCESS\RegComp\5059 Screen)	
1.	Activity/Document Number: <u>UFCR 13-011</u> Revision Number <u>00</u> Title: <u>Addition of a Description of Alkali Silica Reaction (ASR)</u> Brief Description of activity (what is being changed and why): <u>Addition of a description of Alkali Silica Reaction (ASR) to the UFSAR as required by 10CFR 50.71(e)</u> Continued <input type="checkbox"/>
2.	Applicability Determination Other applicable processes identified during the <i>applicability determination</i> : <u>None</u>
3.	List the documents (UFSAR, Technical Specifications, and other documents) reviewed where relevant information was found, including section numbers: <u>UFSAR sections 3.8.1.6, 3.8.4.6, and 3.8.6, Technical Specifications 3.6.1.6, 4.6.1.6, 3.6.5.3 and 4.6.5.3.</u> Continued <input type="checkbox"/>
4.	Identify relevant SSCs and associated design functions: (see §5.1 of the 5059RM) <u>Seismic Category I structures that provide protection and support for safety related systems and components.</u> Continued <input type="checkbox"/>
5.	50.59 Screening Questions (Check correct response) (See §5.2.2 of the 5059RM for additional guidance): <ul style="list-style-type: none"> a. Does the proposed activity involve a change to an SSC that adversely affects an UFSAR-described <i>design function</i>? (see §5.2.2.1 of the 5059RM) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO b. Does the proposed activity involve a change to a procedure that adversely affects how UFSAR-described SSC design functions are performed or controlled? (see §5.2.2.2 of the 5059RM) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO c. Does the proposed activity involve revising or replacing an UFSAR-described evaluation methodology that is used in establishing the <i>design bases</i> or used in the <i>safety analyses</i>? (see §5.2.2.3 of the 5059RM) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO d. Does the proposed activity involve a <i>test or experiment not described in the UFSAR</i>, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the UFSAR? (see §5.2.2.4 of the 5059RM) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO e. Does the proposed activity require a change to the Technical Specifications? (see §5.2.2.5 of the 5059RM) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
6.	If all questions are answered NO, then implement the activity per the applicable plant procedure for the type of activity without obtaining a License Amendment. If screen question 5e is answered YES, then request and receive a License Amendment prior to implementation of the activity. If screen question 5e is answered NO and question 5a, 5b, 5c or 5d is answered YES, then a 50.59 Evaluation shall be performed. <p style="text-align: right;">50.59 Evaluation No: <u>N/A</u></p>
7.	Provide justification for the answer to each question in Section 5 above. See attached. <input type="checkbox"/> Continued <input checked="" type="checkbox"/>
8.	Screen Signoffs: Screen Preparer: <u>(b)(4)</u> Date: <u>3/12/13</u> Screen Reviewer: <u>(b)(4)</u> Date: <u>3/12/13</u> (Print name) (Sign)

50.59 Screen

UFCR 13-011, Rev. 00

50.59 Screen No. 13-054, Rev. 00, Page 2 of 4

5. 50.59 Screening Questions (Con't)

5a. Does the proposed activity involve a change to an SSC that adversely affects an UFSAR-described *design function*?

No. The proposed change updates the UFSAR to include a description of Alkali Silica Reaction (ASR) and a reference document that evaluated its impact on structures. As determined in reference 6 of UFSAR section 3.8.6, structures affected by ASR are capable of performing their design basis function. ASR is considered to be a degraded nonconforming condition pursuant to Regulatory Issue Summary (RIS) 2005-20. An operability determination was performed which established reasonable assurances that the structures and embedded/drilled-in concrete anchors are capable of performing all required design basis functions. The design functions of concrete structures include; protection from missiles, flooding and other natural phenomenon including earthquake, provide foundations and support for SSCs, and protection from release of fission products. The addition of the ASR description and reference document does not affect the design function of the concrete structures described in the UFSAR.

5b. Does the proposed activity involve a change to a procedure that adversely affects how UFSAR-described SSC design functions are performed or controlled?

No. The proposed change updates the UFSAR to include a description of ASR and a reference document that evaluated its impact on structures. There are no procedures affected by this UFSAR change. The design procedures used to establish the design basis of structures described in the UFSAR are not adversely affected by this change. As such, the proposed activity does not involve a change to a procedure that adversely affects how UFSAR-described SSC design functions are performed or controlled.

5c. Does the proposed activity involve revising or replacing an UFSAR-described evaluation methodology that is used in establishing the *design bases* or used in the *safety analyses*?

No. The proposed change updates the UFSAR to include a description of ASR and a reference document that evaluated its impact on structures. The addition of the ASR description and reference document does not involve revising or replacing an UFSAR-described evaluation methodology that is used in establishing the design basis or used in the safety analyses. An interim assessment of ASR affected structures was completed in reference 6 of UFSAR section 3.8.6 that provides reasonable assurances that the structures are capable of performing their design basis function in accordance with guidance provided in Regulatory Issue Summary (RIS) 2005-20. ACI 318-71 and ASME Section III, Division 2 – 1975 codes was used to establish the design basis for reinforced concrete structures and is not affected by this UFSAR change. Design basis calculations will be reconciled to account for ASR following completion of the actions delineated in the ASR corrective action plan. The design code equations, design methodology, computer analysis and calculations used to establish the design basis of reinforced concrete structures are not revised, replaced or affected by this UFSAR change.

50.59 Screen

UFCR 13-011, Rev. 00

50.59 Screen No. 13-054, Rev. 00, Page 3 of 4

5. 50.59 Screening Questions (Con't)

5d. Does the proposed activity involve a *test or experiment not described in the UFSAR*, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the UFSAR? (see §5.2.2.4 of the 5059RM)

No. There are no tests or experiments involved as the result of the proposed UFSAR change describing ASR and the addition of a reference document that evaluated its impact on structures. Conservative test data from concrete industry publications was used as input in reference 6 of UFSAR section 3.8.6 to evaluate the impact of ASR on concrete structures. However, this testing is not within the bounds of this screening question. The proposed activity does not involve a test or experiment not described in the UFSAR, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the UFSAR.

5e. Does the proposed activity require a change to the Technical Specifications? (see §5.2.2.5 of the 5059RM)

The Containment Building structural integrity is addressed in Technical Specification 3.6.1.6. The structural integrity of the Containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6 in Modes 1, 2, 3, and 4. Technical Specification 4.6.1.6, states "The structural integrity of the Containment vessel shall be determined by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel in accordance with the Containment Leakage Rate Testing Program. Any abnormal degradation of the Containment vessel detected during the above required inspections shall be reported to the Commission in a Special Report pursuant to Specification 6.8.2 within 15 days."

The presence of ASR in the Containment building concrete is not considered an abnormal degradation of the Containment vessel. A structural evaluation to determine the impact of ASR on the Containment per AR 1804477 concluded that the presence of microcracking and expansion resulting from ASR do not have a significant impact to the Containment structural performance and the structure remains above full design capability. Therefore, the proposed activity does not require a change to the Containment Building Technical Specification or reporting pursuant to Specification 6.8.2.

The Containment Enclosure Building structural integrity is addressed in Technical Specification 3.6.5.3. The structural integrity of the Containment Enclosure Building shall be maintained at a level consistent with the Containment Leakage Rate Testing Program in Modes 1, 2, 3, and 4. Technical Specification 4.6.5.3, states "The structural integrity of the Containment Enclosure Building shall be determined in accordance with the Containment Leakage Rate Testing Program. Any abnormal degradation of the Containment Enclosure Building detected during the above required inspections shall be reported to the Commission in a Special Report pursuant to Specification 6.8.2 within 15 days. This inspection is a visual inspection for gross cracks and displaced concrete.

The presence of ASR microcracking in the Containment Enclosure Building concrete is not considered gross cracking and there is no evidence of displaced concrete. However, in July 2011 NextEra Energy Seabrook conservatively reported to the NRC the presence of ASR in the Containment Enclosure

50.59 Screen

UFCR 13-011, Rev. 00

50.59 Screen No. 13-054, Rev. 00, Page 4 of 4

Building. Therefore, the proposed activity does not require a change to the Containment Enclosure Building Technical Specifications.

The proposed UFSAR change describing ASR and the addition of a reference document that evaluated its impact on structures does not require a change to any Technical Specifications.

Heater, Keith

From: Floyd, Niklas
Sent: Tuesday, September 17, 2013 1:22 AM
To: Heater, Keith
Subject: FOIA: Notes from last week's status meeting
Attachments: ASR Meeting - NRC Working Group 032813.docx

From: Conte, Richard
Sent: Monday, April 01, 2013 9:38 AM
To: Trapp, James; Cook, William; Raymond, William; Chaudhary, Suresh; Buford, Angela; Floyd, Niklas
Subject: Notes from last week's status meeting

See the attached notes in the forum that NextEra gave us.

Not sure if you want to do a status call for next Wednesday April 10, at the normal 1030pm frame.

You might want to talk some more on the gray areas:

- rebar prestressing;
- where they are headed with the Structures Monitoring Program; and,
- Primary Containment various options and where they are leaning.

There may also be a development in the Connelly to Galloway call.

The file is a the following link:

<G:\DRS\Seabrook Concrete\Proj Man>Status Reports\Licensee Status\ASR Meeting - NRC Working Group 032813.docx>

Rich Conte, Seabrook ASR Team Lead, Region I
(610) 337-5183 (Office)

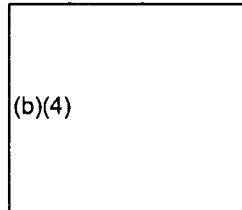
(b)(6) (NRC cell)

What: Meeting - NRC ASR Working Group
When: Thursday, March 28, 2013 08:00 AM
Where: GOB Bull Pen Area
Who:

NRC

Rich Conte
Bill Cook
Bill Raymond
Angela Buford
Jim Trapp
Niklas Floyd

NextEra Energy Seabrook



Agenda

Topics:

1. Status update on the IOUs – still good for most of the information coming in 4/30/13:

- o Root cause summary revision

Root cause itself is on Certrec; NextEra will consider a separate submittal sooner than April 30.

- o Revisions to Structures Monitoring Program, available for 4/30 and see below separate issues

ACTION ITEM: Before the final version is issued, it was agreed that there will be additional discussion between inspection team and NextEra project group.

- o Submittal of Overarching document and material and const. spec for beam program

On schedule for submittal April 30; receiving an independent review by EPRI – it will address rebar pre-stressing in summary way – an AR will go into details on why pre-stressing due to ASR is not a significant issue – lots of discussion on this occurred – see below.

- o Submittal of Update to UFSAR

On schedule for a separate submittal on or about May 1, 2013.

- o Submittal of update to Integrated Cor. Action Plan to incorporate need for License Amendment Request

- Is there clarity on basis for different methodology for both the anchor and beam program.

The License amendment request will not distinguish the anchor vs. the beam testing program.

There was a thought to do the LAR after the first round of testing.

ACTION ITEM: The team advised NextEra to consult with the NRR PM as to what problems that might cause with a partial story pending additional testing to be done.

The motive for the above is to address the issue of how long with this testing program will go on.

If the first round of testing is positive they would like to address the issue as soon as possible to confirm previous evaluations. The opposite will need further evaluation and may not be a good basis for a LAR.

- **Schedule for Phase III walkdown**

A table was presented which will be submitted in the CAL response in order to reflect the schedule. One area is already done and witnessed by NRC staff. Of the remaining 13 areas on the list, all except for 3 dealing with primary containment would be done by 2013. The 2 primary containment Phase III areas would be done during outage conditions in April 2015. A 3rd PC item was to complete the IWL review for all of primary containment in 2015.

The basis for the IWL review delay was discussed: 1) less than 1% of containment is current known to be affected; 2) the environment in the upper areas of the containment are not subjected to the same type of environment as the bottom portion; and 3) past IWL results with pictures did not indicate a problem (note, ASR criteria was not established then).

The IWL procedure will be updated with ASR criteria by June 2013

- **Primary containment actions – see item 3 below**

- **Structural Calculations for CCI 1- 1.5 mm/m**

Done before March 31, and it is on Certrec and being reviewed by Bill Raymond.

- 2. **SMP issue - Potential for substantial material loss in areas of a large amount of carbonation on form water ingress (Tihange-2 OpE).**

Petrographic reports on 2 of 4 cores from bravo electrical tunnel reflect some shallow carbonation as expected due to reaction with CO₂ in the air. Deposits on wall by chemical analysis were calcium oxides and not calcium carbonate.

The cause story on Tihange 2 carbonation issue needed further review. NextEra will pursue with INPO/WANO organization.

3. SMP issue - Forecast of actions for primary containment to confirm or deny presence of ASR.

The determination of path to choose will be listed as an action on the integrated corrective action list.

IWL is scheduled for 2015 with a look for ASR.

They are considering many paths including shallow cores testing.

Tier II areas including containment will have a CCI update every 2.5 years which is in 2014.

4. SMP issue - Preliminary review of latest round of CCI measurements.

NRC staff observation is that the methodology changed again and consistency for comparison and trend was questioned.

NextEra informed NRC staff that the previous data was updated to the new methodology.

Staff suggested doing a comparison on the original 20 by 20 areas for any trends.

Staff also questioned why the vertical and horizontal index values were combined. Staff learned that the combined index was suggested as a normalization from the University of Texas consultant.

ACTION ITEM: Noble indicated an intent to reconsider separately tracking the vertical and horizontal indices or justify why the indices should be combined. The vertical and horizontal indices appear to be dependent on corresponding directional reinforcement and loadings.

Staff will continue to review the FP xxx811 and 812 reports on the 6 month CCI measurements.

5. SMP issue – Spent Fuel Pool concrete behind liner that was leaking.

Issue will be addressed in the integrated action plan

License renewal commitment covers a number actions including taking a core sample in the building sump to examine progression of boron penetration into the concrete.

The actions to be done by 2015.

6. CR or AR on rebar pre-stressing

Lots of discussion occurred and more needed as AR Evaluation is developed in the next month.

ACTION ITEM: AR will go into details on why pre-stressing due to ASR is not a significant issue and plans, if any, to quantify during Texas Testing.

7. CR or AR on non-applicability of tri-axial core testing to concrete

On track to address based on input from the U of T professors who stated that triaxial testing is not appropriate to apply to concrete unlike rocks.

8. Schedule for Inspections in Texas when anchor testing starts?

Weather in Texas is not cooperating – delayed to possible late May or early June

9. Additional inspections at Seabrook???

Will go to Seabrook the week of May 20, 2013 if they are not near to the week for the first of the anchor testing.

Otherwise the May inspection will be in Texas.

10. Preliminary results of review of unredacted response to CAL No. 11.

Staff should be done with review by beginning of next week. Conte will let Noble know if there is a change in course.

Additional Items

A. Design basis of CEB vs PC with respect to airplane impact and areas affected by ASR?

ACTION ITEM: Brian Brown completed a review in the area and the paper will be loaded on Certrec.

B. Review section of containment that are tri-axially reinforced structure and whether or not affected by ASR?

Various sections have different reinforcement and drawings were available to identify the section with the types of reinforcement by section.

C. What is the plan to close the operability determination for containment?

Discussed in item 3 above.

D. Plans to dewater annulus area and clean-up leached concrete.

They do plan a permanent higher capacity sump pump in the annulus area. They do plan to reseal the joints. With better control of water input they can begin to cleanup.

ACTION ITEM: They will have chemistry provide presentation to NRC staff on ground water chemistry. They will also explore feasibility to periodically get chemistry data uploaded to Certrec.

Heater, Keith

From: Floyd, Niklas
Sent: Tuesday, September 17, 2013 1:33 AM
To: Heater, Keith
Subject: FOIA: Containment POD Resolution

From: Raymond, William
Sent: Friday, June 21, 2013 3:28 PM
To: Trapp, James; Cook, William; Floyd, Niklas; Buford, Angela
Subject: Containment POD Resolution

Here are my preliminary thoughts...

(b)(4)

For you consideration....
Bill

From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Friday, June 21, 2013 2:51 PM
To: Trapp, James; Cook, William; Raymond, William; Floyd, Niklas; Buford, Angela
Cc: Noble, Rick; OKeefe, Michael; Ossing, Michael
Subject: Upload to CERTREC

the following documents have been uploaded to CERTREC:

1. The preliminary results of the anchor bolt tests
2. The draft of the closure plan for the containment POD

(b)(4)

(b)(4)

Heater, Keith

From: Floyd, Niklas
Sent: Tuesday, September 17, 2013 1:41 AM
To: Heater, Keith
Subject: FOIA: ASR Conference Call
Attachments: ASR Update Agenda for 8-28 Call with NextEra.docx

From: Cook, William
Sent: Friday, August 23, 2013 2:14 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Raymond, William; Buford, Angela; Floyd, Niklas; Marshall, Michael; McMurtray, Anthony; Cataldo, Paul; Plasse, Richard; Lamb, John; Dentel, Glenn; Chaudhary, Suresh
Subject: RE: ASR Conference Call

Rick, Ted and Paul,

Attached is our proposed agenda for the call. Please feel free to add other items as you see fit.

Thanks,
Bill

-----Original Appointment-----

From: Willoughby, Paul (mailto:(b)(4)@nexteraenergy.com)
Sent: Wednesday, August 21, 2013 5:31 PM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Ossing, Michael; Cook, William; Raymond, William; Buford, Angela; Floyd, Niklas
Subject: ASR Conference Call
When: Wednesday, August 28, 2013 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: SBK-IPC-2-ConferenceRoom

Call in number (b)(6) passcode (b)(6)

Agenda
NextEra to provide update on testing

Agenda for August 28th ASR Call with NextEra

- Provide update of UT-Austin test program (CCI monitoring of anchor test specimens and shear/lap-splice specimen fabrication and aging)
- Discuss preliminary options for alternative anchor testing, if CCI values aren't achieved on test specimens (e.g., in-situ at Unit 1 or 2, different design test specimens, etc)
- Discuss potential impact of anchor test specimen aging/CCI observations on future shear/lap test specimen testing or schedule.
- Discuss preliminary views regarding the validation and/or correlation of test specimen CCI values (ASR expansion) to Seabrook reinforced concrete structure CCI measurements
- Discuss plans for out-of-plane deep pin monitoring at Seabrook Station
- Discuss potential impact on current Prompt Operability Determinations (e.g., any preliminary considerations for through-wall core bores at either Unit 1 or 2, additional visual inspections or examinations of structures without through-wall restraints (stirrups), etc.)
- Any preliminary changes in test program or beam fabrication?
- Provide insights on June CCI results.

Heater, Keith

From: Floyd, Niklas
Sent: Tuesday, September 17, 2013 1:23 AM
To: Heater, Keith
Subject: FOIA: UFCR 13-001
Attachments: 20130401093850115.pdf

From: Conte, Richard
Sent: Monday, April 01, 2013 9:49 AM
To: Buford, Angela; Cartwright, William; Chaudhary, Suresh; Cline, Leonard; Cook, William; Cruz, Holly; Dentel, Glenn; Erickson, Alice; Floyd, Niklas; Fuhrmann, Mark; Graves, Herman; Hogan, Rosemary; Hughey, John; Khanna, Meena; Kobetz, Timothy; Lamb, John; Manoly, Kamal; Marshall, Michael; McMurtray, Anthony; Merzke, Daniel; Milano, Patrick; Morey, Dennis; Ott, William; Philip, Jacob; Raymond, William; Sheikh, Abdul; Sircar, Madhumita; Stuchell, Sheldon; Thomas, George; Trapp, James; Barkley, Richard
Subject: FW: UFCR 13-001

FYI

From: Vassallo, Theodore [mailto:(b)(4)@nexteraenergy.com]
Sent: Monday, April 01, 2013 9:44 AM
To: Willoughby, Paul
Cc: Conte, Richard; Noble, Rick
Subject: UFCR 13-001

Paul;

The attached document is the UFSAR change which adds ASR to the Seabrook UFSAR. At the request of the NRC last Thursday, please add the attached document to Certrec.

Regards;

ted

Heater, Keith

From: Floyd, Niklas
Sent: Tuesday, September 17, 2013 1:10 AM
To: Heater, Keith
Subject: FOIA: NextEra Response to CAL No. 11 -
Attachments: SBK-L-13027 CAL Response - Anchor Test Program 022813.pdf

From: Conte, Richard
Sent: Monday, March 04, 2013 11:37 AM
To: Buford, Angela; Cartwright, William; Chaudhary, Suresh; Cline, Leonard; Cook, William; Cruz, Holly; Erickson, Alice; Floyd, Niklas; Fuhrmann, Mark; Graves, Herman; Hogan, Rosemary; Hughey, John; Khanna, Meena; Kobetz, Timothy; Lamb, John; Manoly, Kamal; Marshall, Michael; McMurtray, Anthony; Merzke, Daniel; Milano, Patrick; Morey, Dennis; Ott, William; Philip, Jacob; Raymond, William; Schroeder, Daniel; Sheikh, Abdul; Sircar, Madhumita; Stuchell, Sheldon; Thomas, George; Trapp, James
Cc: Case, Michael; Cheok, Michael; Clifford, James; Correia, Richard; Delligatti, Mark; Evans, Michele; Galloway, Melanie; Hiland, Patrick; Lubinski, John; Lund, Louise; Miller, Chris; Nieh, Ho; Roberts, Darrell; Trapp, James; Wilson, Peter; Dacus, Eugene; McNamara, Nancy; Screnci, Diane; Sheehan, Neil; Tiff, Doug; Dean, Bill; Lew, David; Holody, Daniel
Subject: NextEra Response to CAL No. 11 -

Here is the response to the CAL No. 11, submit technical details for the Anchor Test Program. They consider certain sections proprietary but they are promising a more complete package by March 15. We will need to consult if a FOIA comes in right now.

In the interim, the inspection team and working group will need to further digest. There is a working group meeting scheduled for March 13, 2013.

[redacted]
From: Willoughby, Paul [mailto:(b)(4)@nexteraenergy.com]
Sent: Monday, March 04, 2013 10:26 AM
To: Conte, Richard
Cc: Noble, Rick; Brown, Brian; Vassallo, Theodore
Subject: RE: You Guys Working Today?

see attached.. [redacted]

From: Conte, Richard [mailto:Richard.Conte@nrc.gov] [redacted]
Sent: Friday, March 01, 2013 4:41 PM
To: Willoughby, Paul
Cc: Noble, Rick; OKeefe, Michael
Subject: You Guys Working Today?

Is the response out yet on the CAL No.11 item due 2/28/13. Can I get a heads up pdf.

Rich Conte, Seabrook ASR Team Lead, Region I
(610) 337-5183 (Office)
[redacted] (NRC cell)

Trapp, James

From: Willoughby, Paul (b)(4) [redacted]@nexteraenergy.com
Sent: Monday, March 04, 2013 3:45 PM
To: Trapp, James; Conte, Richard; Cook, William; Raymond, William; Buford, Angela
Cc: Noble, Rick; Vassallo, Theodore; Brown, Brian
Subject: Uploads to CERTREC

(b)(4)

the ASR Training Slides have been uploaded to CERTREC

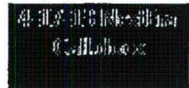
Trapp, James

From: Cook, William
Sent: Tuesday, April 16, 2013 11:20 AM
To: Willoughby, Paul
Cc: Trapp, James; Floyd, Niklas
Subject: RE: ASR Conference Call

Paul,

I have attached a draft agenda of topics we would like an update on. Please feel free to add, as appropriate.

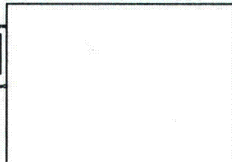
Thanks,
Bill



-----Original Appointment-----

From: Willoughby, Paul
Sent: Wednesday, April 10, 2013 7:48 AM
To: Willoughby, Paul; Noble, Rick; Brown, Brian; Vassallo, Theodore; Trapp, James; Cook, William; Buford, Angela; Floyd, Niklas; Raymond, William; OKeefe, Michael
Subject: ASR Conference Call
When: Wednesday, April 17, 2013 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).
Where: OSB Engineering Managers Conference Room (Tentative)

call in number (b)(6) passcode (b)(6)



Agenda: Update on status of open CAL items

4/17/13 ASR Call with NextEra Discussion Topics

- 1) Open CAL Item status:
 - a. CAL #2, RCE revision to be submitted, cover letter explanation
 - b. CAL #4, ICAP revision to be submitted (Containment next steps, Phase III walkdowns, UFSAR & LAR, Spent Fuel Pool)
 - c. CAL #8, Additional technical details (overarching document submitted and construction of test beams – team observation)
 - d. CAL #9, SMP revision, made available for team review
 - e. CAL #11, Anchor Testing – schedule for testing and team observation
- 2) Structural Evaluations – under team review (Bill Raymond)
- 3) Internal documentation of issues of interest
 - a. Rebar ASR chemical stressing
 - b. Confined versus un-confined core sample testing
- 4) Water chemistry and environmental monitoring program incorporation into SMP and presentation to team (reference to CAL #9)
- 5) UFSAR and License Amendment Request update (reference to CAL #4)
- 6) Schedule and coordination (if not already discussed)