

Seabrook Station Safety Performance in 2011 & Seabrook Station Safety in light of the Alkali-Silica Reaction Occurring in Plant Structures

2011 Reactor Oversight Process
Nuclear Regulatory Commission – Region I

NRC Representatives



- Chris Miller – Director of Reactor Safety
- Arthur Burritt - Branch Chief
- William Raymond – Senior Resident Inspector
- Joe DeBoer– Acting Resident Inspector
- Meena Khanna – Branch Chief

Art



Bill



Joe



Meena



Chris



Agenda

- Introduction
- Discussion of safety performance at Seabrook in 2011
- Discussion of Seabrook plant safety in light of ASR occurring in site structures
- Closing remarks
- NRC to address public questions



NRC Assessment Summary



Seabrook for 2011

- NextEra operated the plant safely
- Seabrook remained in the Licensee Response Column
- No substantive cross-cutting issues were identified
- The NRC plans to perform baseline inspections in 2012



NRC Inspection Activities

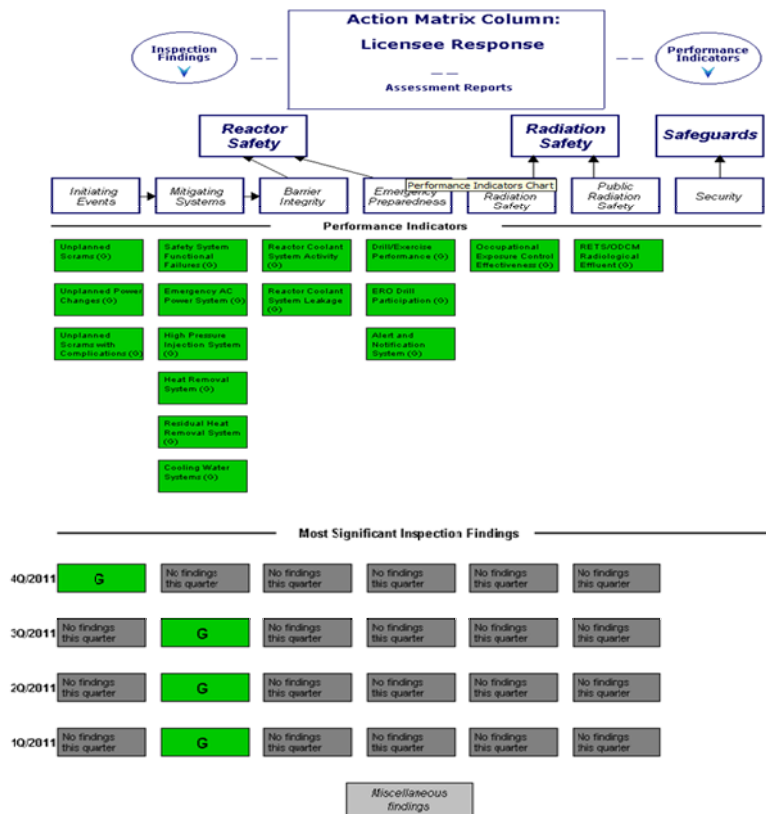
Seabrook for 2011

- 8111 hours of inspection and related activities
- Two resident inspectors on site – residents perform inspections daily and can respond to plant events at any time
- Three team inspections
 - License Renewal Inspection
 - Triennial Fire Protection
 - **Operational Safety And Review Team**



Seabrook PIs and Findings

January 1 through December 31, 2011



- All Green Performance Indicators
- Seven Green findings related to:
 - Maintenance Rule structure, systems and component monitoring
 - Operability determinations
 - Control of transient combustibles
 - Reactor trip



2011 Seabrook Assessment Summary

Licensee Response	Regulatory Response	Degraded Cornerstone	Multiple Repetitive Degraded Cornerstone	Unacceptable Performance
All Inputs are Green; Cornerstone Objectives Fully Met	1 or 2 White Inputs; Cornerstone Objectives Fully Met	2 White or 1 Yellow Input; Cornerstone Objectives Met w/ Moderate Degradation in Safety Performance	Multiple Yellow Inputs or 1 Red Input; Cornerstone Objectives Met w/ Significant Degradation in Safety Performance	Overall Unacceptable Performance; Plants not permitted to Operate w/in this Column; Unacceptable Margin to Safety

- Seabrook was operated safely
- Licensee Response column of the Action Matrix
- Baseline inspections planned for 2011

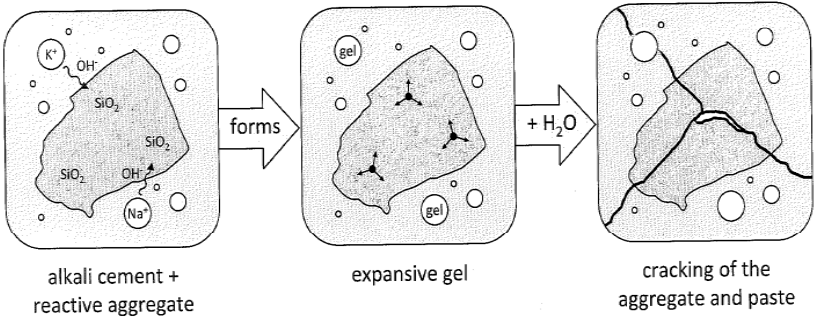


Seabrook Station Safety in light of the Alkali-Silica Reaction Occurring in Plant Structures

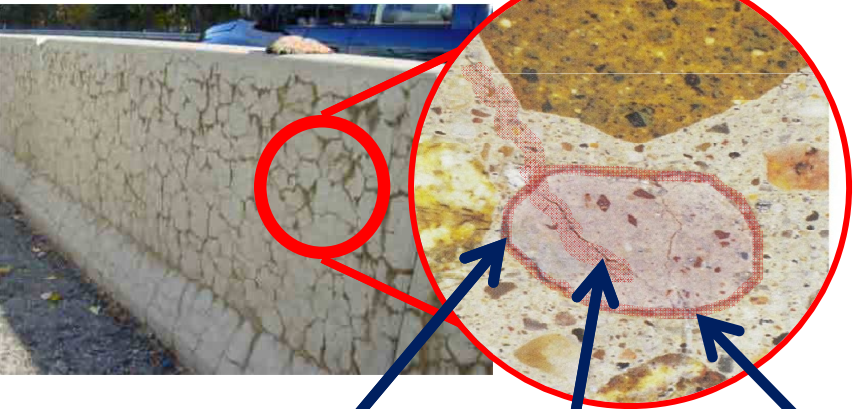
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Alkali-Silica Reaction (ASR)

What is ASR?



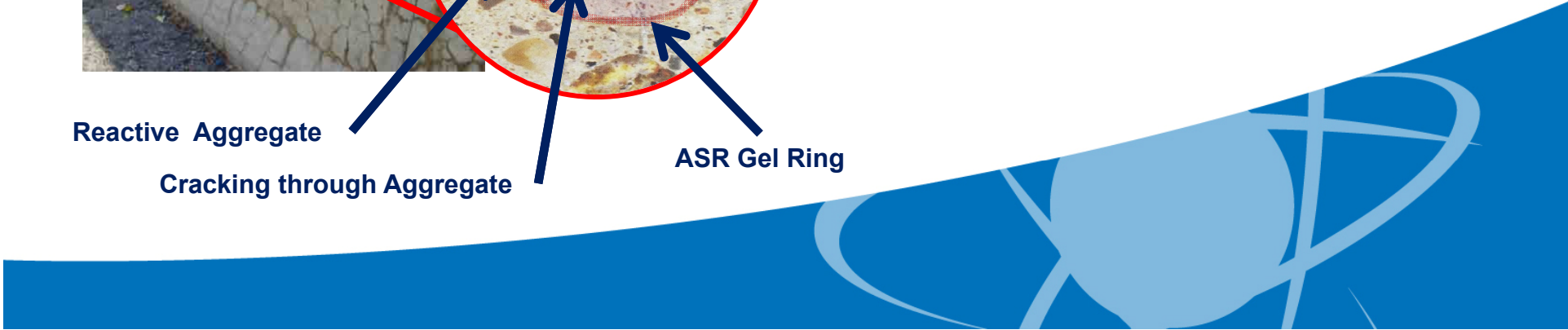
- ASR is a slow chemical reaction in concrete, which occurs in the presence of water, between the alkaline cement and reactive silica found in some aggregates.
- ASR forms a gel that expands causing micro-cracks that affects concrete properties



Reactive Aggregate

Cracking through Aggregate

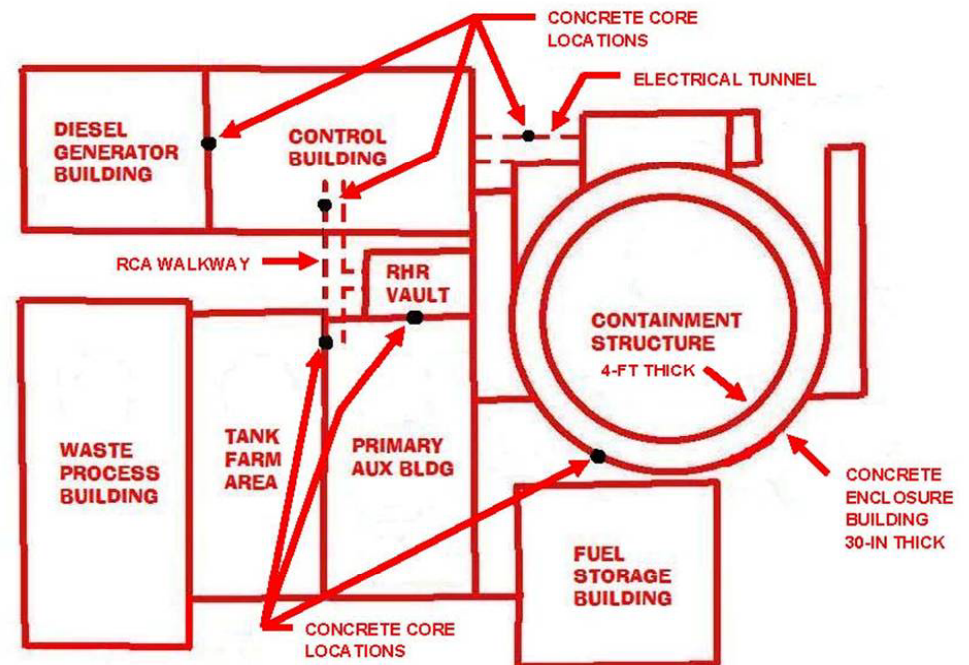
ASR Gel Ring



Alkali-Silica Reaction (ASR)

Where is ASR Confirmed to be Occurring at Seabrook?

- Affected Structures include:
 - B Electrical tunnel
 - Containment enclosure building
 - RHR vault
 - EDG building
 - EFW building



Alkali-Silica Reaction (ASR)

Why is Seabrook Still Safe?

- Conservative safety factors and assumptions used for plant design
- No significant visible deformation, distortion, or displacement was identified in the affected structures
- No indications of rebar corrosion
- ASR limited to localized areas of the affected structures
- ASR and the degradation it causes occurs slowly

Alkali-Silica Reaction (ASR)



What are the Next Steps?

- NRC continually reviews the Structural assessments to verify safety as more information becomes available
- NRC ongoing inspections continue to covering all aspects of the issue under the current license (short term), and long term aging management
- Coordinated effort by multiple NRC offices
- Future public meeting close to site

Meeting Ground Rules



1. Please be respectful to the speaker – only one speaker at a time
2. See NRC staff if you have procedural questions/concerns or still want to sign up.
3. NRC staff members will be available after the meeting to talk to those interested



Contacting the NRC



- Report a safety concern
 - 1-800-695-7403
 - allegation@nrc.gov

General questions

- www.nrc.gov
- Region I Public Affairs
 - Diane Screnci, 610-332-5330
diane.screnci@nrc.gov
 - Neil Sheehan, 610-332-5331 or
neil.sheehan@nrc.gov