Detailed Questions for Seabrook ASR Public Meeting on April 23, 2012

(1) What other in-scope buildings besides the five noted in the inspection report recently issued are suspected of having alkali silica reaction (ASR) based on initial assessments?
   (1a) Where is ASR located at the site?
   (1b) If ASR is suspected, how and when will it be confirmed such as examination by petrography of concrete cores?
   (1c) If ASR is confirmed, what method will be used to distinguish localized vs. global effects for each building?

(2) What is the validity of American Concrete Institute (ACI) code relationships that are affected by ASR:
   - Relationships in Section 8.3 of ACI 318-71 to calculate modulus of elasticity of concrete, E_c.
   - Relationships in Chapter 11 of ACI 318-71 for design for shear and torsion that are expressed as a function of the square root of f'_c.
   - Relationships used to estimate tensile strength of concrete, f_t, for design of anchorages and embedments.
   - Relationships in Chapter 12 of ACI 318-71 that are used for the calculation of reinforcement development length, l_d, which is design for bond between reinforcement and concrete.

(3) What is the ASR reaction rate and when can the endpoint be approximated?

(4) How much engineering margin and/or design margin remains currently?

(5) How and when does NextEra plan to demonstrate structural evaluations based on lower-bound residual strength results, such as for tensile and shear strength?

(6) Is there potential effects of other degradation mechanisms, such as from an “aggressive” groundwater environment, along with the presence of ASR – effects on rebar and concrete?

(7) Is NextEra going to perform alternative testing as opposed to a bounding calculation? Needs that need to be addressed but not limited to these:
   - Need for current information related to tensile and shear strength.
   - What other concrete core testing has been considered (i.e., low stress range stiffness damage tests) to assess expansion-to-date or severity of degradation in the critical direction of the thickness with no rebar ties and lesser resistance to expansion.
   - How has or will concrete core sampling be representative of affected building conditions and will it be addressed in sampling plan.

Enclosure

(8) Corrective Action Plan needs to fully address:
- Condition assessment (extent and characterization of the degradation, including its severity);
- Root cause and corrective action;
- Testing to estimate “expansion to date” and “the current expansion rate”;
- Testing to estimate “potential for further expansion”;
- Interim and long term structural appraisal under design basis loads and load combinations;
- Monitoring and managing the condition;
- Mitigating and remedial measures, and
- Potential for further deterioration due to other mechanisms.

(9) How and when will groundwater in-leakage be mitigated?

(10) What can be done now to more fully understand in-situ concrete conditions?

(11) What would be the key components to obtain in order to conduct a bounding load analysis on the most severely affected building(s) in order to update the operability determinations?

(12) If ASR is confirmed, what additional testing will be conducted to completely determine material properties of the concrete independent of compressive strength information?

(13) What other test information will be gathered to reflect in-situ conditions of the concrete?

(14) Given that the degradation has occurred, is irreversible, how does ASR effect the current licensing and design basis and when will you be in position to know if the U.S. Nuclear Regulatory Commission (NRC) staff review and approval is needed?

(15) When will the engineering evaluation be submitted to NRC?

(16) When will the corrective action plan be submitted to the NRC?

(17) How do you see the impact on the license renewal schedule?

(18) Will these actions be factored into the corrective action plan?