August 11th, 2015

Re: Adverse Impact on Safety

Dear Ms. Lipa,

NRC staff actions in regards to the Byron tornado operability evaluation are having an unquantifiable but adverse effect on safety of Byron Station. The phrase 'unquantifiable but adverse' is taken from References 3 and 5 in relation to what items belong in Technical Specifications; the concept being that resources spent on items of lesser import detracts from the more significant. I believe NRC is treating the tornado vulnerabilities of the Byron Essential Service Water towers as a *technical specification issue*; for example by insisting on changes to the operability evaluation during the CDBI inspection and disallowing the use of probability. This is being done despite the fact that the tornado event is not technical specification related; the issue should be treated under functionality. Technical Specifications are meant for the prevention and mitigation of accident consequences (Reference 1). Clearer language is found in reference 6 where the reading of the appeal board was that technical specifications were reserved for those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an *immediate* threat to the public health and safety. [emphasis added]

10 CFR 50.36 governs technical specification related items via four criteria:

Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

> *Response:* The issue is unrelated to instrumentation.

Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

> *Response:* The issue is clearly not a process variable or operating restriction. One could argue that there should be a design feature that the SX fans be protected from tornadoes. However, the function of the SX fans during a tornado event is to cooldown both units without an accident in progress. Since this event does not assume the failure or challenge of a fission product barrier, it is not Tech Spec related.

Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

> *Response:* Clearly, the SX fans are part of the primary success path of the post-tornado cooldown event. However, since the cooldown event does not involve the failure or challenge of a fission product barrier, it is not Tech Spec related.

Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

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> *Response:* Calculation ARA-002116 shows that the probability of tornado missile damage such that the SX tower cannot perform as needed in the cooldown event is less than the regulatory acceptance criteria.

Further, Reference 4 states that the Design Bases Accidents related to tech specs are UFSAR Chapter 6 and 15 events; not a chapter 2 and 3 tornado. That tornadoes are not tech spec related is supported by reference 2; when spelling out what items belong in Tech Specs, natural and man-made phenomena were categorically excluded.

The fact that the Ultimate Heat Sink is simply covered by technical specifications is not enough; one must also consider the credited safety function. From the Tech Spec Bases, it is clear that the design is based on a LOCA/LOOP, not a post-tornado dual unit cooldown. Consider now General Design Criterion 2:

> *Criterion 2—Design bases for protection against natural phenomena.* Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed.

I wish to draw attention to item (2), in particular the term "appropriate combinations". Reference 7 discusses whether a tornado missile could cause detonation of an ammonium nitrate fertilizer barge; the Appeal Board concluded that tornadoes and fertilizer barge explosions are "wholly independent events". Further, in general, there must be some logical connection before it is "appropriate" to consider two events in combination. In the Byron case, since a tornado does not cause a LOCA and a LOCA does not cause a tornado, the events need not be considered together. Note that the vagueness of GDC 2 item 3 could allow its contortion and abuse to conclude that GDC 2 is not met for Byron; regardless this would not impact the arguments related to technical specifications.

The nature of the distractions is the several hundred hours since the CDBI expended defending the operability evaluation. Since the distractions are an ongoing issue, I respectfully request timely action and results.

Other addressees on this e-mail can attest that I favor an aggressive and intrusive regulator; this note does not change my position. However, the rules should also be followed: This is not a technical specification issue.

Although employed by Exelon, these are the concerns of a member of the public; the views herein may or may not reflect those of my employer.

References:

1. 31 Federal Register 10891, *Technical Specifications for Facility Licenses*, August 16th, 1966
2. 47 Federal Register 13369, *Technical Specifications, Proposed Rule*, March 30th, 1982
3. 52 Federal Register 3788, *Proposed Policy Statement on Technical Specification Improvements for Nuclear Power Reactors*, February 2nd, 1997

4. 58 Federal Register 39132, *Final Policy Statement on Technical Specification Improvements for Nuclear Power Reactors*, July 22nd, 1993
5. 60 Federal Register 36953, *Technical Specifications, Final Rule*, July 19th, 1995
6. 9 NRC 263, Atomic Safety and Licensing Appeal Board, *In the matter of Portland General Electric Company, Trojan Nuclear Plant,* March 21st, 1979
7. 10 NRC 775, Atomic Safety and Licensing Appeal Board, *In the matter of Public Service of Oklahoma, Black Fox Station*, December 7th, 1979

Regards,

Barry Quigley
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