

From: [Philip Stoddard](#)
To: [Docket, Hearing](#)
Cc: [Scro, Jennifer](#); [Hsu, Kimberly](#)
Subject: [External_Sender] Limited Appearance Statement -Turkey_Point_52-040&52-041-COL
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Attachments: [Stoddard limited appearance statement.pdf](#)

I am submitting the attached file as a Limited Appearance Statement to the Electronic Hearing Docket
Turkey_Point_52-040&52-041-COL

thank you,

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD PANEL

Before the Licensing Board:

E. Roy Hawkens, Chair

Dr. Michael F. Kennedy

Dr. William C. Burnett

In the Matter of)
)
) Docket Nos. 52-040 and 52-041
Florida Power & Light Company)
) ASLBP No. 10-903-02-COL-BD01
Turkey Point,)
Units 6 and 7)
)

**LIMITED APPEARANCE STATEMENT OF PHILIP K. STODDARD
REGARDING JOINT INTERVENORS' CONTENTION 2.1**

My name is Philip K. Stoddard. I am a scientist and professor employed by the Department of Biological Sciences at Florida International University. My professional expertise and experience relevant to these proceedings lies in the areas of experimental design, sampling, and interpretation of scientific data, scientific literature, and the soundness of scientific arguments, subjects that I have taught at the graduate level for the past two decades.

The applicant's arguments and rebuttals hinge on the lack of proof that karst collapse and fault lines revealed by recent seismic studies of the Boulder Zone confining unit [1] actually constitute pathways for upward migration of water and contaminants. The applicant argues that no evidence shows that (a) the material within the karst collapse zones and vertical faults are less permeable than the intact confining layer, and (b) that water in the Boulder Zone actually moves upward through these features.

One expects such defensive arguments, but they are logically and scientifically flawed. The onus is not on the challengers to prove that water actually moves through breaks in the confining layers, but rather the burden of proof is on the applicant to prove that these breaks ARE IMPERMEABLE to water and contaminants and thus cannot constitute a risk to public safety at any time in the future.

1. Cunningham 2015-TN-4574: Kevin J. Cunningham, *Seismic-Sequence Stratigraphy and Geologic Structure of the Floridan Aquifer System Near "Boulder Zone" Deep Wells in Miami-Dade County, Florida*, U.S. Geological Survey Scientific Investigations Report 2015-5013 (2015), Pre-Filed Initial Testimony of Mark A. Quarles as **Exhibit INT-009**.

In fact, no such evidence of water impermeability of recently discovered heterogeneities in the confining unit has been presented by the applicant or by any scientist in these proceedings or elsewhere. All direct evidence of permeability or impermeability is based entirely on extrapolation from a limited number of core samples taken from sites that missed the breaks in the confining unit detected by Cunningham's 2015 seismic study [1]. To conclude from a small number of drilled cores that no breaches exist in the confining unit would be like sampling the Pacific Ocean with a single spy plane track and concluding that Russian submarines do not exist because none were photographed.

In general, proof of safety cannot hinge on the lack of information. In the specific case, we cannot determine permeability from cores that were not taken at the points of karst collapse and fault lines that have the greatest likelihood of being permeable. To base determinations of safety on speculation, even by experts, about whether such sites might or might not be permeable is scientifically indefensible and completely irresponsible. In safety determinations, the onus of proof must always be on the applicant.

What are the costs of erroneous determination of safety? Once contaminants are injected underground, it becomes too late to remove them should they be detected migrating upward. Further, horizontal migration within the Boulder Zone can allow contaminants to move outside the monitoring zone before migrating upward through fissures not adjacent to monitoring wells. Given these concerns, monitoring provides inadequate assurance of public protections from migrating underground contaminants. Contaminants snaking their way underground are analogous to the pythons that have invaded the Everglades – easy to release, hard to monitor, virtually impossible to recapture.

To conclude, in FPL's direct case, and in the direct case presented by the NRC Staff, the FEIS fails to satisfy the Commission's obligations under NEPA because it incorrectly concludes that the environmental impacts at issue in Contention 2.1 are "small." Rather, absent any expert analysis of permeability of the actual materials within the karst collapse sites and fault lines breaching the confining layer atop the Boulder Zone, environmental impacts at issue in Contention 2.1 must correctly be determined to be "unknown", and the threat of adverse impacts "significant".

Respectfully submitted,

/Signed electronically by Philip K. Stoddard/

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