



Serial: NPD-NRC-2009-140
July 8, 2009

10CFR52.79

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

**LEVY NUCLEAR POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 52-029 AND 52-030
SUPPLEMENT 2 TO RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER
NO. 035 RELATED TO SURFACE FAULTING**

- References:
1. Letter from Brian C. Anderson (NRC) to Garry Miller (PEF), dated May 8, 2009, "Request for Additional Information Letter No. 035 Related to SRP Section 2.5.3 for the Levy County Nuclear Plant, Units 1 and 2 Combined License Application"
 2. Letter from Garry D. Miller (PEF) to U.S. Nuclear Regulatory Commission, dated June 23, 2009, "Response to Request for Additional Information Letter No. 035 Related to Surface Faulting," Serial: NPD-NRC-2009-106
 3. Letter from Garry D. Miller (PEF) to U.S. Nuclear Regulatory Commission, dated July 1, 2009, "Response to Request for Additional Information Letter No. 035 Related to Surface Faulting," Serial: NPD-NRC-2009-142

Ladies and Gentlemen:

Progress Energy Florida, Inc. (PEF) hereby submits a response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in the referenced letter.

A partial response to the NRC request is addressed in the enclosure. The enclosure also identifies changes that will be made in a future revision of the Levy Nuclear Power Plant Units 1 and 2 application.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (919) 546-6107.

DO94
NRW

I declare under penalty of perjury that the foregoing is true and correct.

Executed on July 8, 2009.

Sincerely,

A handwritten signature in black ink that reads "Garry D. Miller". The signature is written in a cursive style with a large, stylized initial "G".

Garry D. Miller
General Manager
Nuclear Plant Development

Enclosure/Attachments

cc : U.S. NRC Region II, Regional Administrator
Mr. Brian C. Anderson, U.S. NRC Project Manager

bc : John Elnitsky, VP-Nuclear Plant Development
Robert Kitchen, Manager-Nuclear Plant Licensing
Tillie Wilkins, NPD-Licensing
Shawn Hughes (Shaw Power Group)
John O'Neill, Jr. (Pillsbury Winthrop Shaw Pittman, LLP)
A. K. Singh (Sargent & Lundy, LLC)
Cynthia Malecki (Sargent & Lundy, LLC)
Lorin Young (CH2M HILL)
John Archer (WorleyParsons)
NPD Document Control Inbox (Records: Correspondence)
File: NGG-NPD (Dawn Bisson)

**Levy Nuclear Power Plant Units 1 and 2
Supplement 2 to Response to NRC Request for Additional Information Letter No. 035
Related to SRP Section 2.5.3 for the Combined License Application,
Dated May 8, 2009**

<u>NRC RAI #</u>	<u>Progress Energy RAI #</u>	<u>Progress Energy Response</u>
02.05.03-1	L-0331	NPD-NRC-2009-106, dated June 23, 2009
02.05.03-2	L-0332	Future Response
02.05.03-3	L-0333	NPD-NRC-2009-142, dated July 1, 2009
02.05.03-4	L-0334	Response enclosed – see following pages
02.05.03-5	L-0335	Future Response
02.05.03-6	L-0336	Response enclosed – see following pages
02.05.03-7	L-0337	Future Response
02.05.03-8	L-0338	NPD-NRC-2009-106, dated June 23, 2009
02.05.03-9	L-0339	NPD-NRC-2009-106, dated June 23, 2009
02.05.03-10	L-0340	NPD-NRC-2009-142, dated July 1, 2009

<u>Attachment</u>	<u>Associated RAI #</u>	<u>Pages Included</u>
RAI 02.05.01-39 Figure 2	02.05.03-6	1
RAI 02.05.01-39 Figure 3	02.05.03-6	1

NRC Letter No.: LNP-RAI-LTR-035

NRC Letter Date: May 8, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.05.03-4

Text of NRC RAI:

FSAR Section 2.5.3.2.1.2 (pgs 2.5-180 and 2.5-181) discusses the evaluation of faults postulated by Vernon (1951). This evaluation is based primarily on imagery (Landsat data from 2000, 1949 aerial photograph mosaics, 10-m USGS DEM data, and high-resolution DEM developed from LIDAR data acquired in 2007). FSAR Section 2.5.3.2 (pg 2.5-177) concludes that the faults postulated by Vernon (1951) could not be identified at the surface from any of these data sets, and (pg 2.5.1-1 78) that identification of subsurface faults based on apparent displacement of stratigraphic units is highly speculative. However, the staff notes that a cross section from Arthur (2001), presented in FSAR Figure 2.5.1-245, shows a part of the Ocala Limestone stratigraphic section to be missing in Well Number W6903 at a location in the cross section that may lie near one of the three faults postulated by Vernon (1951) to occur within the site area (i.e., the Inverness fault and Unnamed Faults A and B). It is not clear whether the missing stratigraphy is related to displacement along a subsurface fault rather than erosion, non-deposition, or dissolution of the limestone.

In order for the staff to assess whether one of the faults postulated by Vernon (1951) may exist in the subsurface within the site area, please discuss implications of the cross section data from Arthur (2001), as illustrated in Figure 2.5.1-245, in regard to whether subsurface faulting, rather than dissolution, non-deposition, or erosion, could be responsible for the missing limestone unit.

PGN RAI ID #: L-334

PGN Response to NRC RAI:

Arthur et al. (Reference 2.5.1-321) did not interpret or discuss faulting. However, in the cross section in revised FSAR Figure 2.5.1-245 (updated in response to RAI 02.05.01-34), they noted probable sinkhole fill in W-15075. Arthur et al (Reference RAI 02.05.03-04 01) is the complete report on the Hydrogeologic Framework of the Southwest Florida Water Management District (SWFWMD) of which Arthur et al. (Reference 2.5.1-321) was a progress report. Arthur et al. (Reference RAI 02.05.03-04 01) discuss the faults proposed by various authors who investigated the geology and hydrogeology of the SWFWMD. Utilizing available well data, Arthur et al. (Reference RAI 02.05.03-04 02, Reference RAI 02.05.03-04 03, and Reference RAI 02.05.03-04 04) created isopach and structure maps for the lithostratigraphic units found within the district. The only faults they recognized were two small faults expressed only on the Suwannee Limestone surface near the unit's northern limits (Reference RAI 02.05.03-04 02). The faults are not recognized on the Ocala Limestone or Avon Park Formation surfaces (Reference RAI 02.05.03-04 03 and Reference RAI 02.05.03-04 04). They recognize no faults in the area of the LNP.

The absence of the Ocala Limestone has been mapped by Scott et al. (Reference RAI 02.05.03-04 05). The Ocala is missing from the LNP area due to erosion (reference response to RAI 02.05.01-36). The Avon Park Formation top in FSAR Figure 2.5.1-245 is not at a significantly different elevation from well W-15643 to W-6903 and W-14519 across the crest of

the Ocala Platform where dip is generally less than 10 ft per mile (Reference RAI 02.05.03-04 03 and Reference RAI 02.05.03-04 04). Given the erosional and karstic nature of the Ocala Limestone and Avon Park Formation surfaces, it is difficult to postulate the existence of a fault.

References:

Reference RAI 02.05.03-04 01

Arthur, D.J., C. Fischler, C. Kromhout, J.M. Clayton, G.M. Kelley, R.A. Lee, L. Li, M. O'Sullivan, R.C. Green, C.L. Werner, "Hydrogeologic Framework of the Southwest Florida Water Management District," Florida Geological Survey, Bulletin no. 68, 2008.

Reference RAI 02.05.03-04 02

Arthur, D.J., C. Fischler, C. Kromhout, J.M. Clayton, G.M. Kelley, R.A. Lee, L. Li, M. O'Sullivan, R.C. Green, C.L. Werner, "Hydrogeologic Framework of the Southwest Florida Water Management District," Florida Geological Survey, Bulletin no. 68, Plate 41, 2008.

Reference RAI 02.05.03-04 03

Arthur, D.J., C. Fischler, C. Kromhout, J.M. Clayton, G.M. Kelley, R.A. Lee, L. Li, M. O'Sullivan, R.C. Green, C.L. Werner, "Hydrogeologic Framework of the Southwest Florida Water Management District," Florida Geological Survey, Bulletin no. 68, Plate 39, 2008.

Reference RAI 02.05.03-04 04

Arthur, D.J., C. Fischler, C. Kromhout, J.M. Clayton, G.M. Kelley, R.A. Lee, L. Li, M. O'Sullivan, R.C. Green, C.L. Werner, "Hydrogeologic Framework of the Southwest Florida Water Management District," Florida Geological Survey, Bulletin no. 68, Plate 38, 2008.

Reference RAI 02.05.03-04 05

Scott, T.M, K.M. Campbell, K.R. Rupert, J.D. Arthur, R.C. Green, G.H. Means, T.M. Missimer, J.M. Lloyd, J.W. Yon, and J.G. Duncan, "Geologic Map of the State of Florida," Florida Geological Survey Open-File Report 80, Map Series 145, 2001.

Associated LNP COL Application Revisions:

No COLA revisions have been identified associated with this response.

Attachments/Enclosures:

None.

NRC Letter No.: LNP-RAI-LTR-035

NRC Letter Date: May 8, 2009

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.05.03-6

Text of NRC RAI:

FSAR Section 2.5.3.4 (pg 2.5-182) states that there are no pronounced lineaments trending across the site location that suggest either a through-going fault or a major fracture system. However, maps of the site location (e.g., Figures 2.5.3-216, 2.5.3-218, and 2.5.3-220) appear to illustrate a northwest-trending lineament that, while discontinuous, could define part of a regional fracture system along which possible paleosinkholes occur. FSAR Section 2.5.3.2.1.3 (pg 2.5-182) states that the LNP1 and LNP2 sites are located between zones of prominent northwest-trending lineaments, while a zone of northeast-trending lineaments lies between the two units.

In order for the staff to assess whether regional fracture trends cross-cut the site location, please discuss lineaments illustrated in Figures 2.5.3-216, 2.5.3-218, and 2.5.3-220 in regard to whether they may represent geologic structures.

PGN RAI ID #: L-336

PGN Response to NRC RAI:

Diagrams showing the orientation of lineaments identified in the LNP site location (1-km [0.6-mi.] radius) and orientations of fracture sets reported from mapping of the Crystal River Unit No. 3 (CR3) excavation are shown on RAI 02.05.01-39 Figure 3. Comparison of these data sets shows that the orientation of the lineaments observed in the site location are consistent with the mapped bedrock fracture (joint) trends at CR3. The most prominent trends observed in the lineament data also are consistent with observations of fracture sets mapped in exposures of the Avon Park Formation at the Gulf Hammock quarry and Wacasassa River localities (RAI 02.05.01-39 Figures 2 and 3). The prominent northwest-trending alignment of shallow depressions/wetlands identified approximately 300 m (1000 ft.) west of the LNP unit footprints (FSAR Figures 2.5.3-216, 2.5.3-218, and 2.5.3-220) is consistent with the predominant fracture set mapped by Vernon (Reference 2.5.1-262) based on analysis of regional lineaments and with one of the predominant orthogonal fracture sets mapped in exposures of the Avon Park Formation at the Gulf Hammock quarry and Wacasassa River localities (RAI 02.05.01-39 Figures 2 and 3).

These observations support the statement made in FSAR Section 2.5.3.2.1.3 (pp. 2.5-182) that the lineaments mapped in the site location likely reflect structurally controlled joints that have been enhanced by dissolution of carbonate and marine erosion. The predominant trends of fracture sets at the site inferred from the mapped lineaments are consistent with regional trends, and text in FSAR Sections 2.5.3.2.1.3 and 2.5.3.4 will be revised in a future revision to clarify this observation. The discontinuous expression of the lineaments in the site location, the low relief exhibited by the marine terrace surface at the LNP site, and the absence of evidence of surface faulting observed in borings or from interpretation of boring data at the LNP site support conclusions in the FSAR that there is evidence of no capable tectonic surface deformation present at the site.

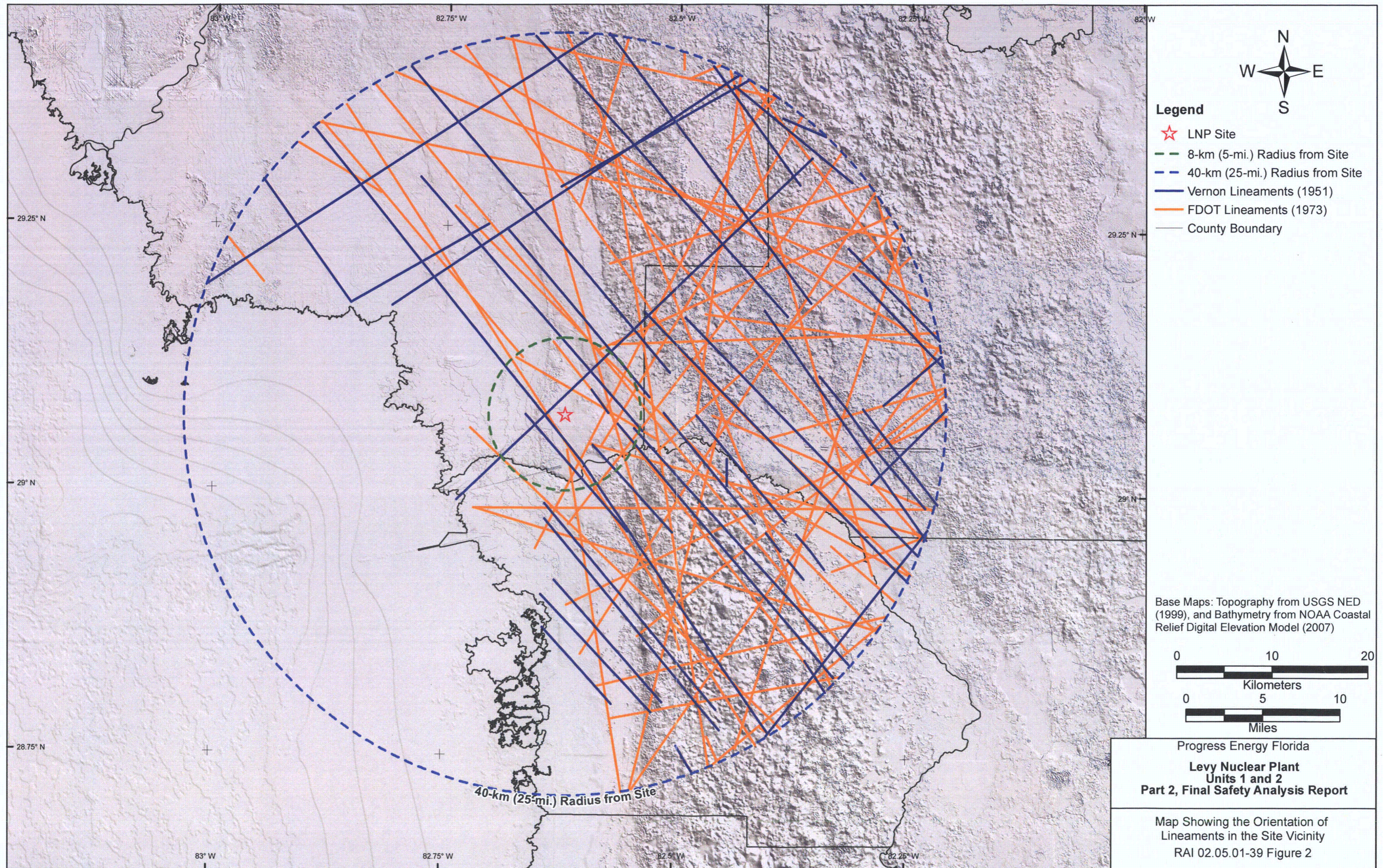
Associated LNP COL Application Revisions:

The response to RAI 02.05.03-5 will provide changes to FSAR Section 2.5.3 that will be included in a future revision of the LNP COLA.

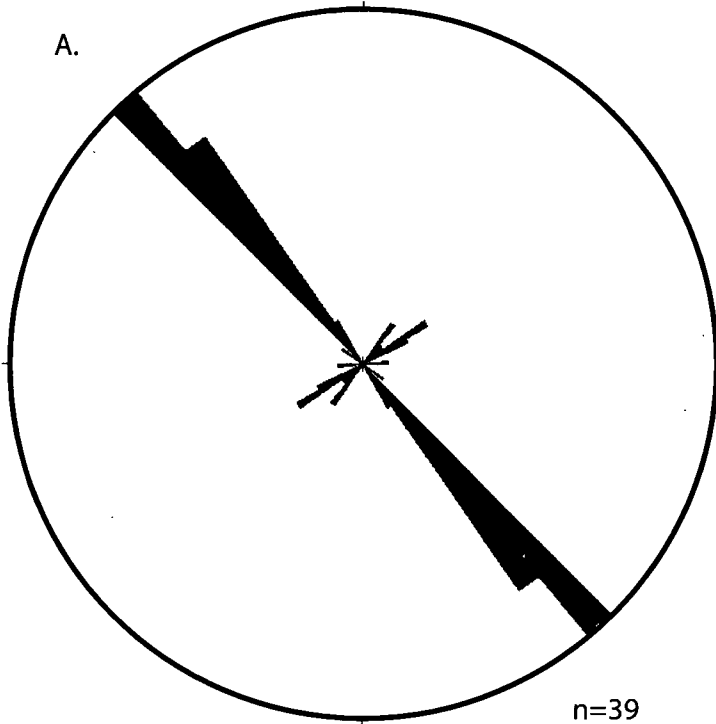
Attachments/Enclosures:

RAI 02.05.01-39 Figure 2

RAI 02.05.01-39 Figure 3



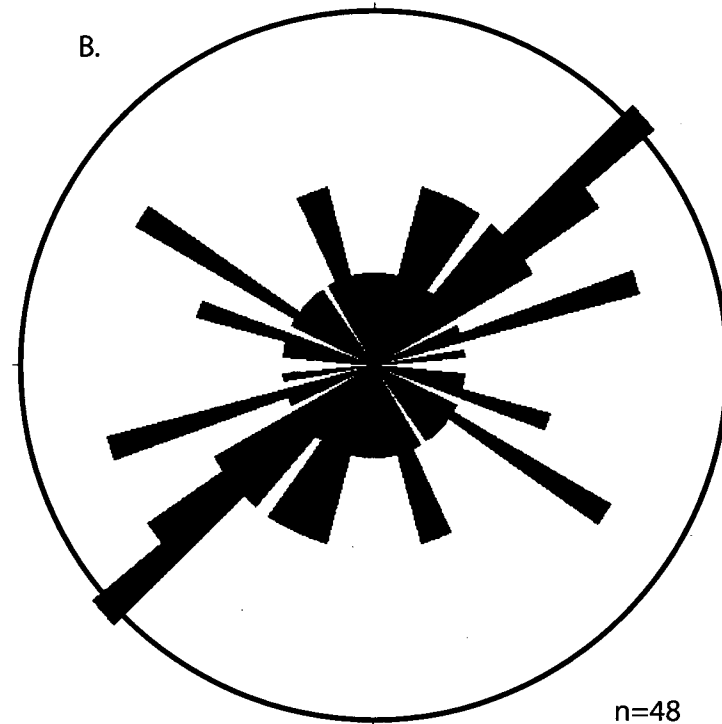
A.



n=39

A: Mapped lineaments by Vernon (1951) in the site vicinity (40-km [25-mi.] radius)

B.



n=48

B. Mapped lineaments by the Florida Department of Transportation (1973) in the site vicinity (40-km [25-mi.] radius)

Progress Energy Florida

**Levy Nuclear Plant
Units 1 and 2
Part 2, Final Safety Analysis Report**

Diagrams Illustrating the Orientation of
Lineaments in the Site Vicinity

RAI 02.05.01-39 Figure 3