

ADDITIONAL TOPIC FOR THE APRIL 18, 2018 PUBLIC TELEPHONE CONFERENCE WITH ENERGY ON THE RIVER BEND STATION, UNIT 1 LICENSE RENEWAL APPLICATION

1. Set 8 Response (Dated February 20, 2018 ML 18051A531)

- RAI 3.6.2.2.2-1 – Regarding the applicant’s response for “Material” and “Aging Effects Requiring Management,” the staff identified missing relevant information for Polymer High-voltage Insulators. These are identified in the listings below. The further evaluation discussion does not address the missing items. The staff needs to discuss these items and the applicant’s justification for conclusion that no aging management program is required.

Missing Material: (from vendor literature and EPRI 1015920)

- Epoxy
- Silicone Gel
- Sealant
- Ductile Iron

Missing Aging Effects Requiring Management:

- SCC of glass fibers (EPRI 1002025)
- Swelling of SIR layer due to chemical contamination (EPRI 1002025)
- Sheath wetting caused by chemicals absorbed by oil from SIR compound (EPRI 1016823)
- Brittle fracture of rods resulting from discharge activity/flashunder/flashover (EPRI 1015920)
- Chalking and crazing of resulting in contamination, arcing, and flashover (EPRI 3002007724)
- Water penetration followed by electrical failure (EPRI 3002007724)
- Bonding failure at rod-sheathing interface (EPRI 3002007724)
- Sheath layer damage from birds and rodents (EPRI 1015920)
- Water ingress through end fitting causing corrosion and fracture of glass fibers (EPRI 1015920)

Polymer insulators have shown to have unique failure modes with little advance indications (EPRI 1002025).

Contamination can be worse for SIR (compared to porcelain insulators) due to silicone oil, especially in late stages of service life (EPRI 1016823).