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## Insights from GL07-01, Inaccessible Cable, Results

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### Generic Letter 07-01

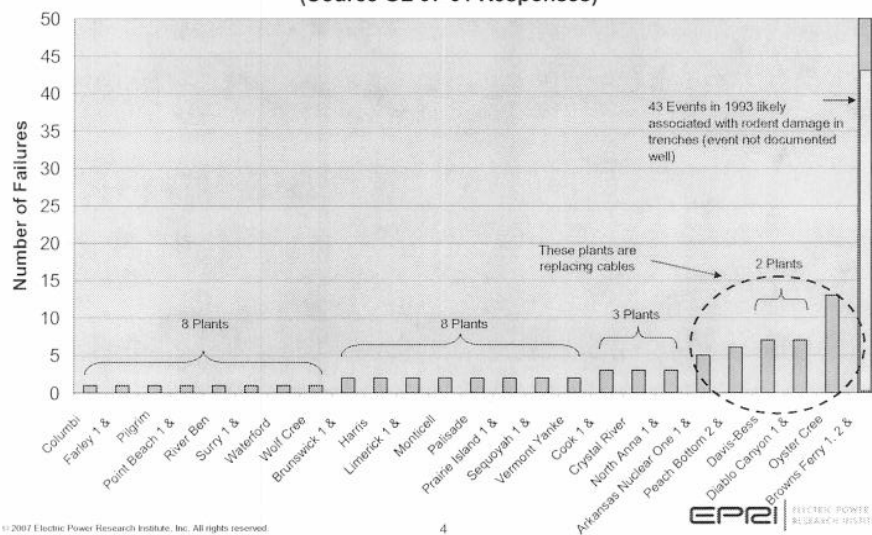
- The letter required utilities to supply failure data on low and medium voltage power cables that are inaccessible (e.g., located in ducts, direct buried)
- The letter also required utilities to supply a description of the condition monitoring and test methods in use for assessing the condition of inaccessible cable
- A separate NRC letter indicated that the letter applied to ac power cables between 480 and 15,000 V

## Overview of Results

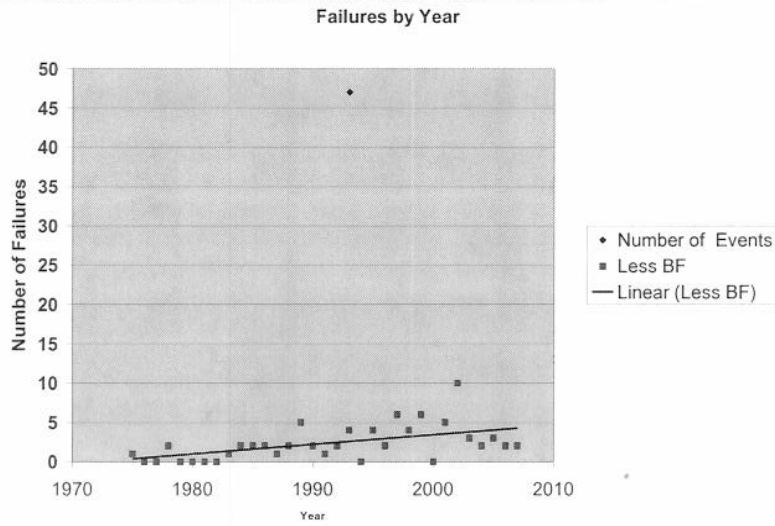
- 61 Units have had no failures on inaccessible medium voltage cables
- 47 Units have had neither low nor medium voltage inaccessible cable failures
- 14 Units had low voltage inaccessible cable failures but no medium voltage cable failures

## MV in Service Failures

In-Service Medium Voltage Failures by Plant  
(Source GL 07-01 Responses)



## Medium Voltage Failures by Year

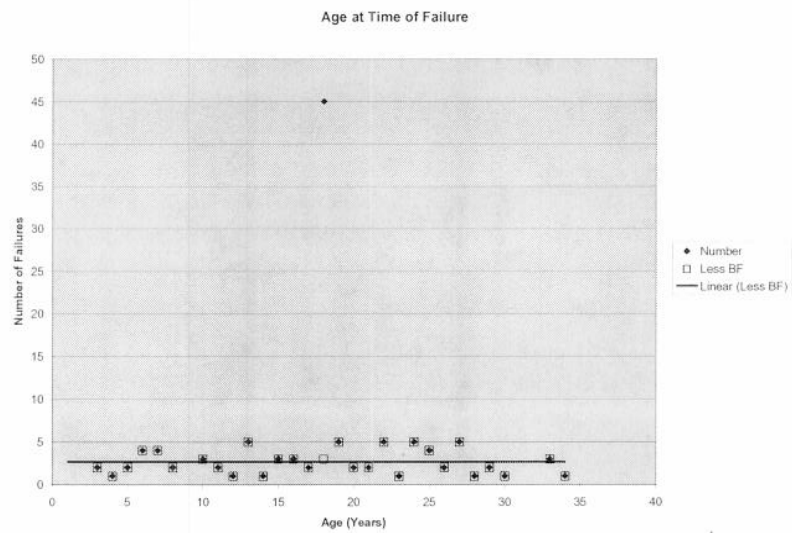


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## Age of Medium Voltage Cable at Time of Failure



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## Tests Used on Medium Voltage Cable

GL 07-01 MV Cable Assessment and Testing Responses	Number of Plants Committed	Percentage of 65 plants
Manhole Inspection	25	38.5
Manhole Pumps/Dewatering	20	30.8
VLF (Very Low Frequency) Tan Delta	5	7.7
VLF Hi-Pot	3	4.6
On-Line Partial Discharge Testing	3	4.6
Power Factor Testing	2	3.1
DC Hi-Pot (Mostly of motor with cable, One cable separately)	9	13.8
Meggering with Load	47	72.3
Polarization Index with Load	20	30.8
Time Domain Reflectometry	2	3.1
Electromagnetic Interference (with Motor)	1	1.5

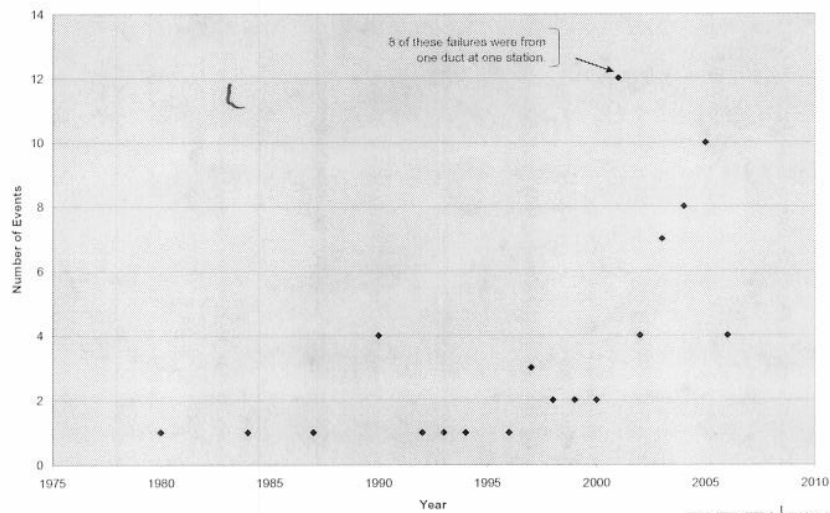
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## Low-Voltage Power Cable Failures

480 V Circuit In-service and Test Identified Failures (65 Total)



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## GL07-01 Low Voltage Results

Brittleness and cracking	3
Damage, cuts w/water	16
Low megger readings	22
Moisture Intrusion	2
Underground splice	1
Unknown	17
Water found in control center pit	1
Events	62

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## Summary

- GL07-01 Results for Medium Voltage cable not significantly different from those of the NEI Survey in 2005 (NEI 06-05 Whitepaper)
- Low-Voltage 480 V failure results show that failures have occurred but not in large numbers (NRC's concern level not known at this point)
- GL07-01 results indicate that only a few plants are using tests that are likely to provide useful early warning of degradation.

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