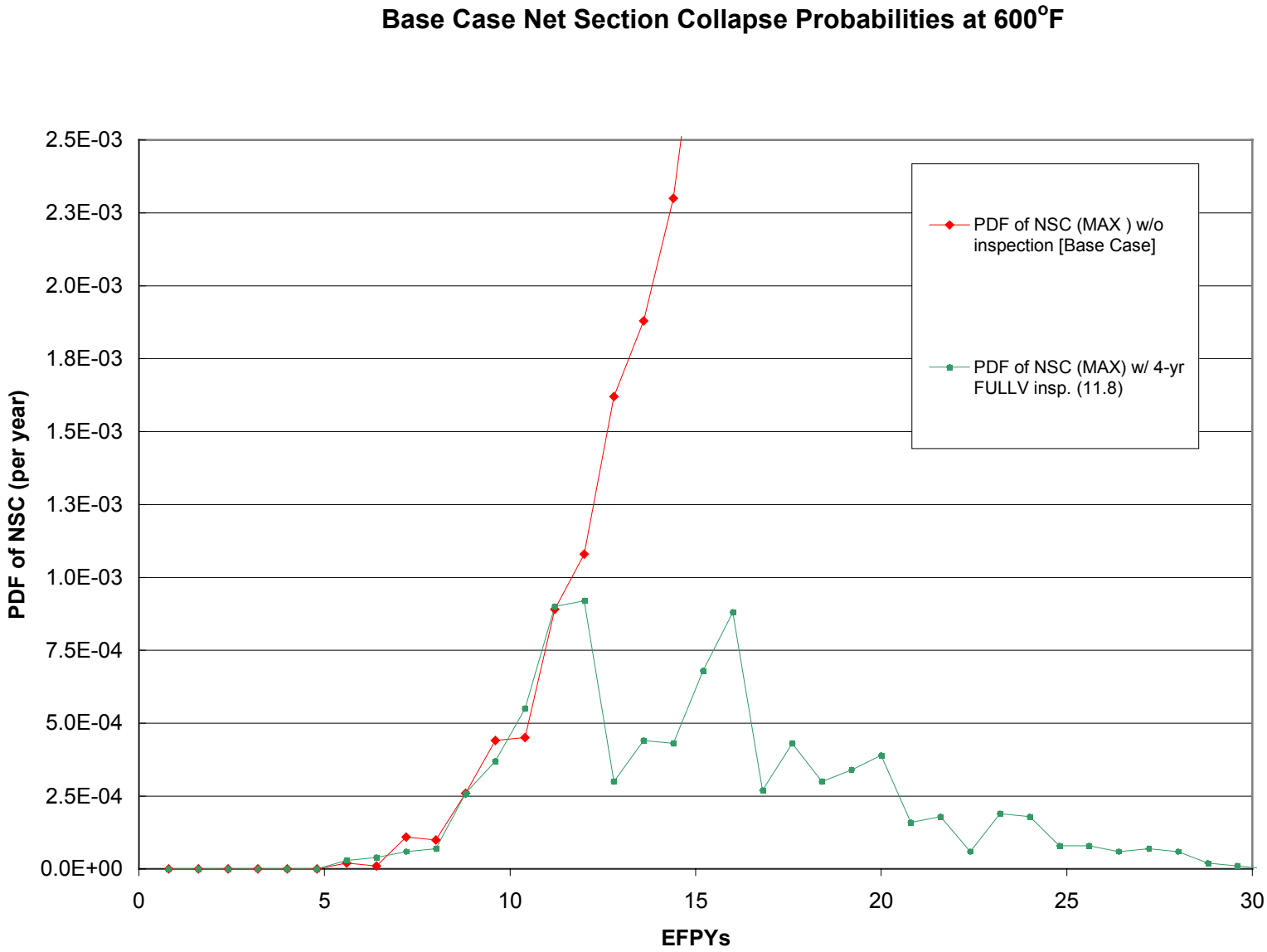
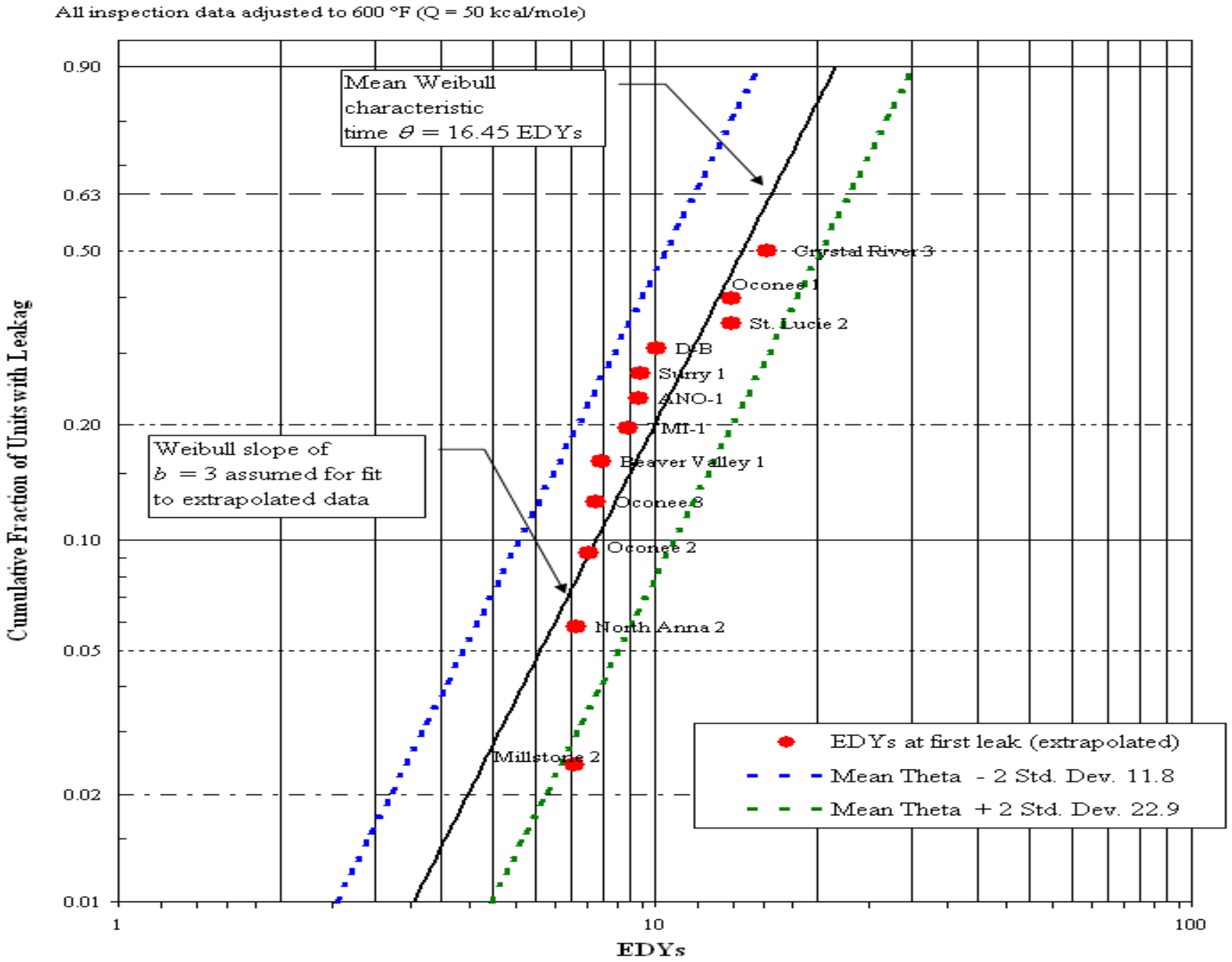
Sensitivity Studies

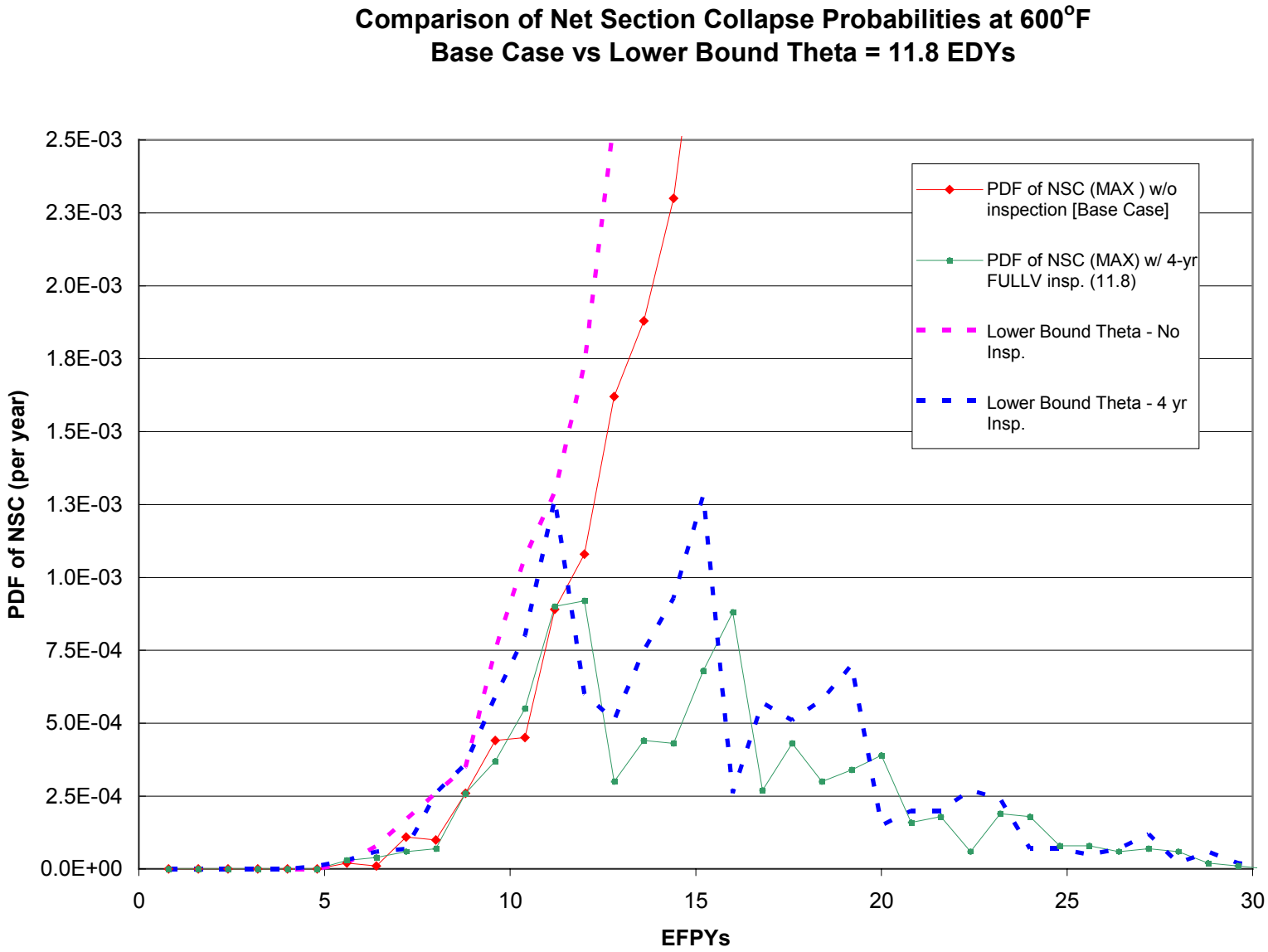
- Effect of Worst Case θ from Weibull
- Effect of Weibull Slope b
- Effect of Initiation-Growth Correlation Factor (Ultimate Sensitivity Case)
- Head Temperature Cases
- Plant-Specific Application Concept

Base Case for Sensitivity Studies

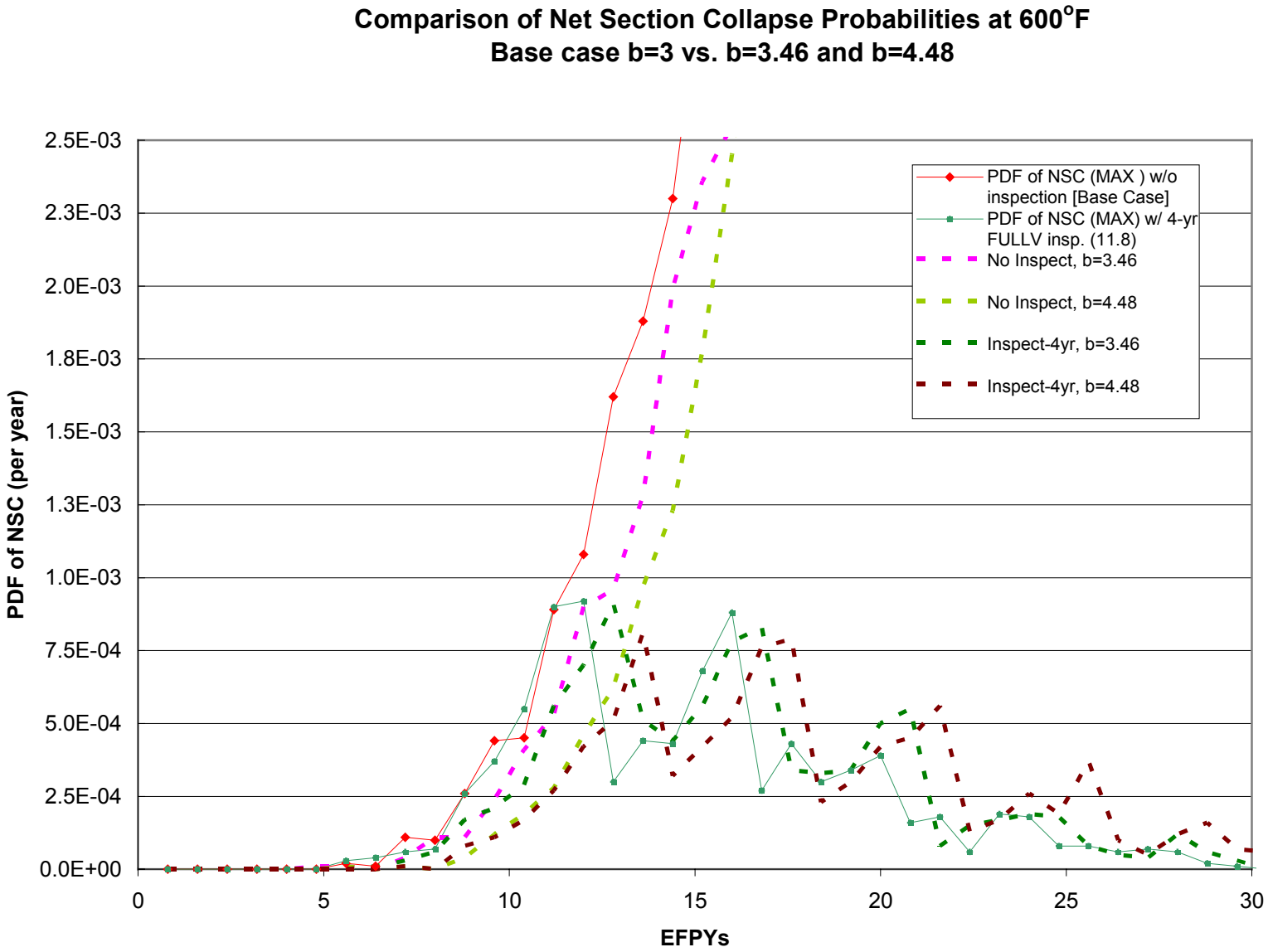



All inspection data adjusted to 600 °F (Q = 50 kcal/mole)
Mean Weibull characteristic time θ = 16.45 EDYs
Weibull slope of b = 3 assumed for fit to extrapolated data
Cumulative Fraction of Units with Leakag
0.90
0.63
0.50
0.20
0.10
0.05
0.02
0.01
1
10
100
EDYs
Crystal River 3
Oconee 1
St. Lucie 2
D.B
Surry 1
ANO-1
MI-1
Beaver Valley 1
Oconee 3
Oconee 2
North Anna 2
Millstone 2
EDYs at first leak (extrapolated)
Mean Theta - 2 Std. Dev. 11.8
Mean Theta + 2 Std. Dev. 22.9

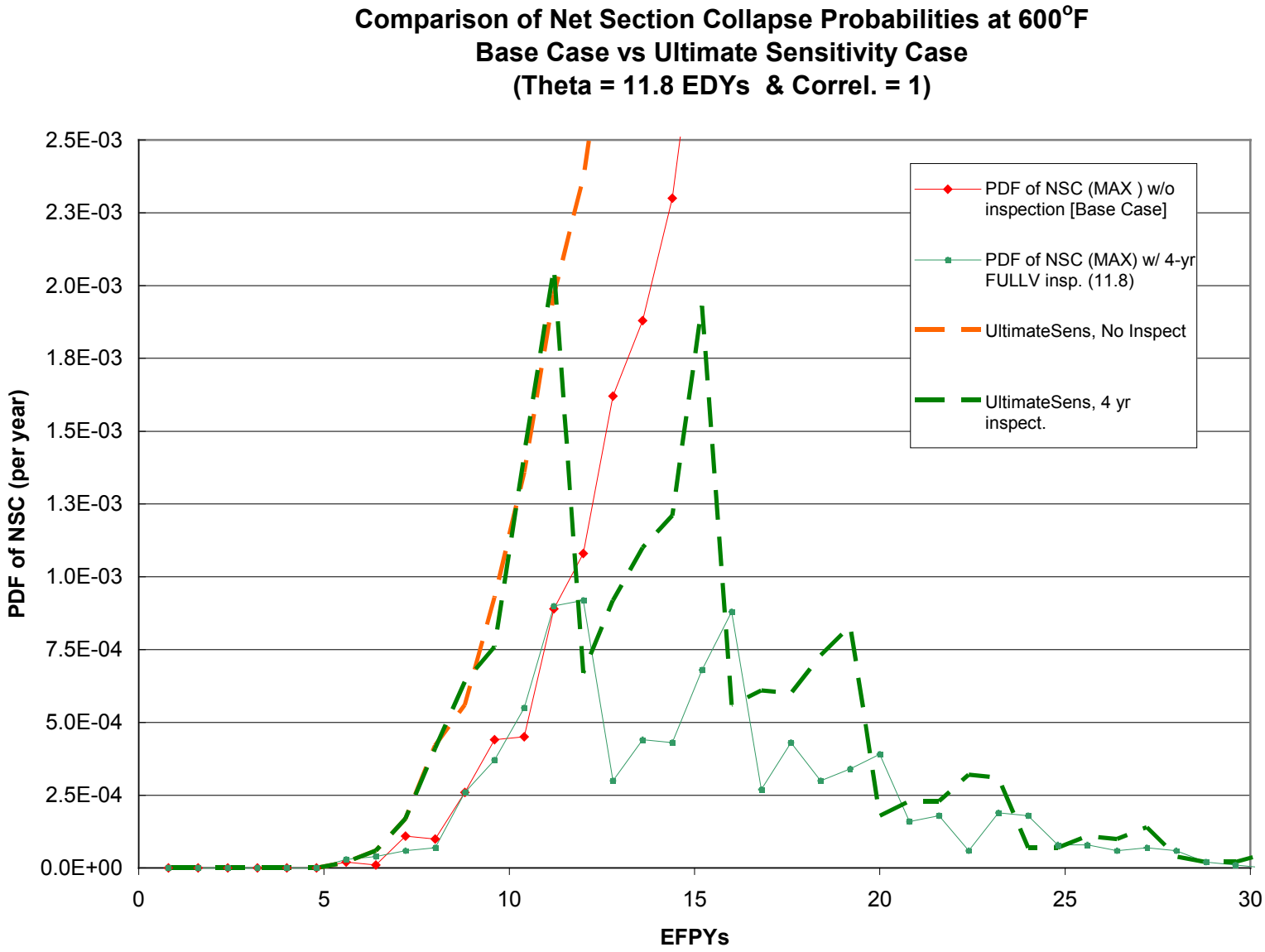
Sensitivity to Weibull Characteristic Time to Failure (θ)



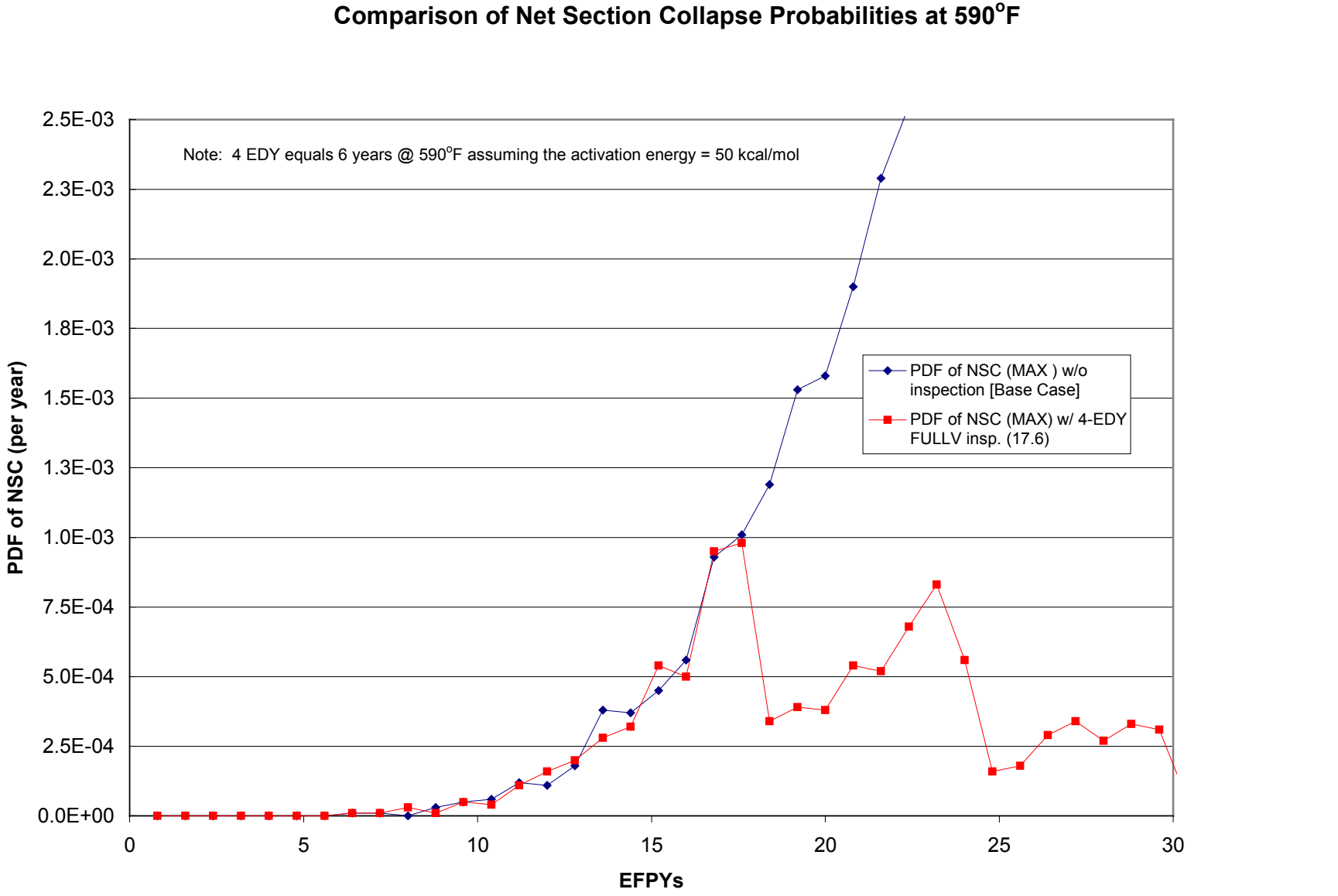
Sensitivity to Weibull Slope (b)



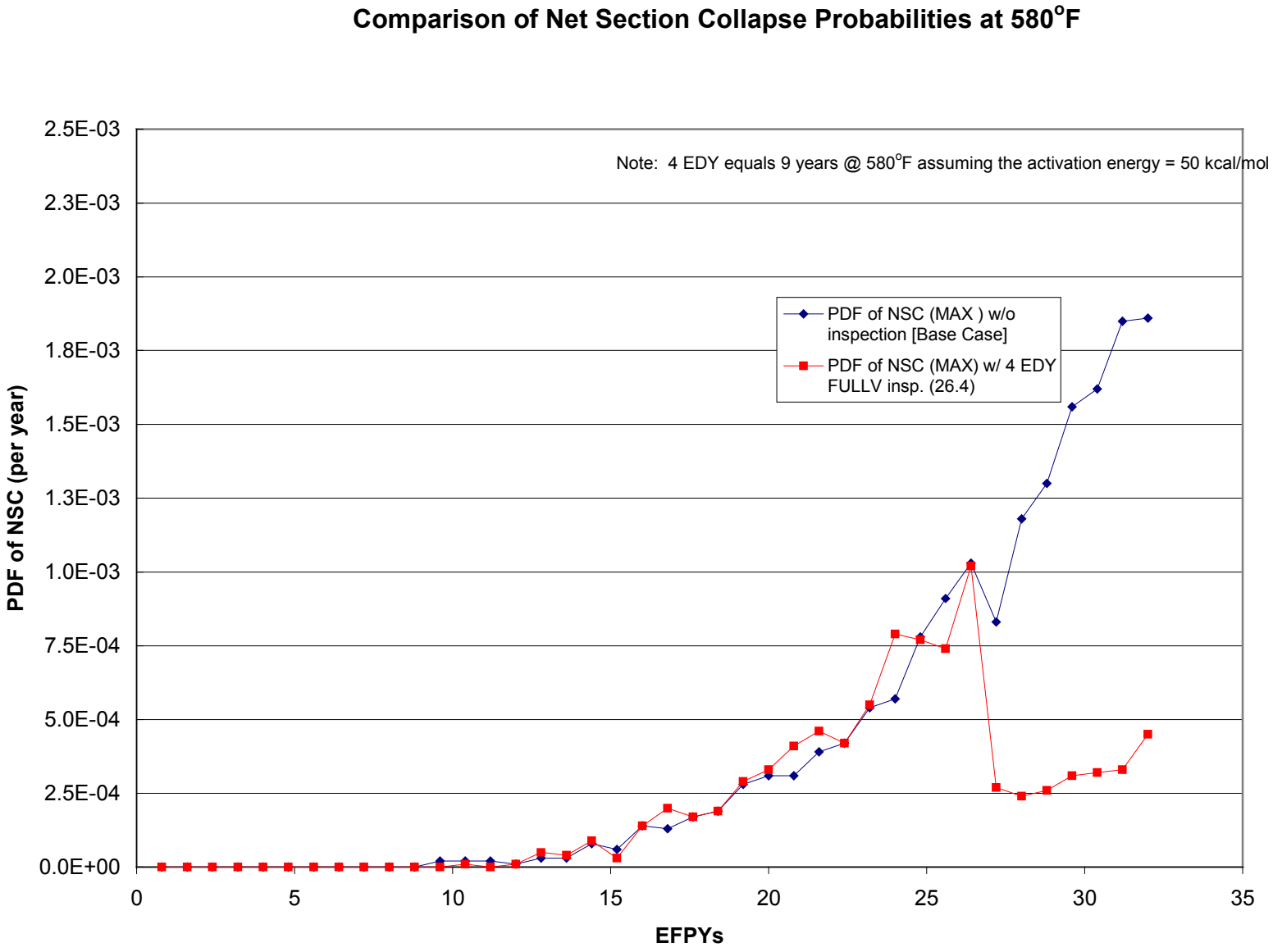
Ultimate Sensitivity Case

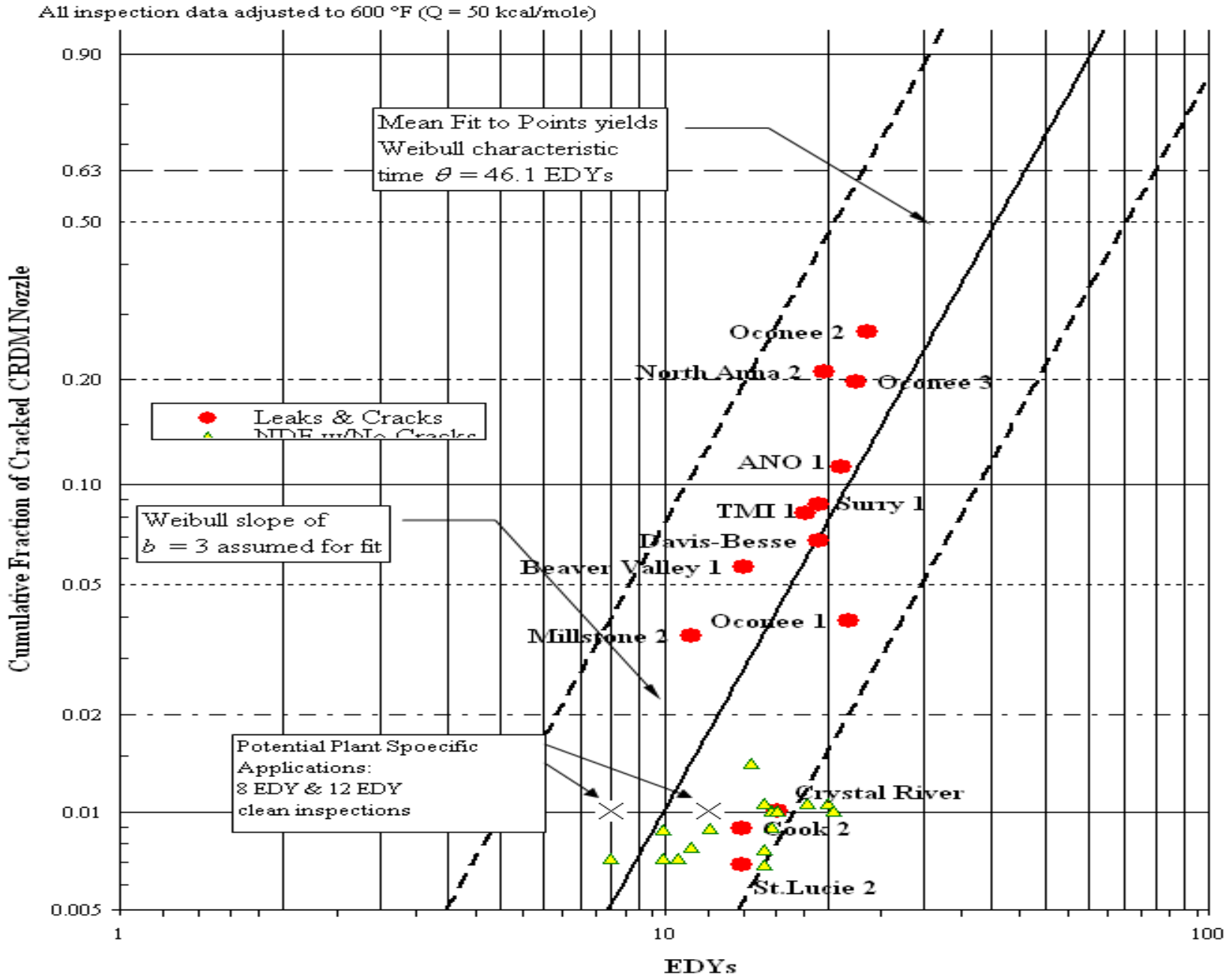


590ºF Inspection Runs



580ºF Inspection Runs




All inspection data adjusted to 600 °F (Q = 50 kcal/mole)
Cumulative Fraction of Cracked CRDM Nozzle
0.90
0.63
0.50
0.20
0.10
0.05
0.02
0.01
0.005
1
10
100
EDYs
Mean Fit to Points yields Weibull characteristic time θ = 46.1 EDYs
Weibull slope of b = 3 assumed for fit
Potential Plant Spoecific Applications: 8 EDY & 12 EDY clean inspections
Leaks & Cracks
NDE w/No Cracks
Oconee 2
North Anna 2
Oconee 3
ANO 1
TMI 1
Surry 1
Davis-Besse
Beaver Valley 1
Oconee 1
Millstone 2
Crystal River
Cook 2
St.Lucie 2