Step #	Step name	Description
1	Analysis article setup	
1.1	Article designation	Establish article of interest
1.2	Environmental conditions	Wind speed distribution
1.3	Governing article parameters	Operational parameters: tip speed, RPM, operating hours, design life
2	Structural analysis	
2.1	Finite element model	3-D shell elements with as-built material properties and lay-up
2.2	Flaw location discretization	Selection of elements for nodal solution of mechanical response
2.3	Load introduction	Uniform pressure distribution applied to HP side of blade
3	Development of failure criteria	
3.1	Fatigue properties	$\varepsilon - N$ Curve for specific R ratios
3.2	Constant life approximation	Piecewise linear approximation
3.3	Designation of spectrum for load reversals	Standardized WISPER reversal spectrum for wind blade loading
3.4	Derivation of total fatigue cycles	Based on operational parameters
4	Flaw data implementation	
4.1	Development of flaw distributions from data	Collected data on waves angles fit to normal distribution w/non-zero mean.
4.2	Designation of simulated flaw distributions for comparative analysis	Analyst generated normal distribution for waves and porosity with zero mean and for porosity w/non-zero mean
4.3	Development flaw occurrence distribution	Spatial distribution describing the probability of a flaw existing by location
4.4	Treatment of flaw structural performance in fatigue	Modification to ε-N curve single cycle intercept with knockdown factor based on flaw magnitude
5	Model verification/tuning	
5.1	Model implementation	Structural model and fatigue failure criteria used on test article
5.2	Development of baseline “design” case	Load application (pressure) tuned to elicit a blade failure at 20 years (without flaws)
6	Probabilistic analysis	
6.1	Probability of failure	Calculated for all locations for each analysis case. Compared to baseline to how conservatism
6.2	Time to failure	Calculated for regions of interest (locations high Pf)