Supplementary Materials

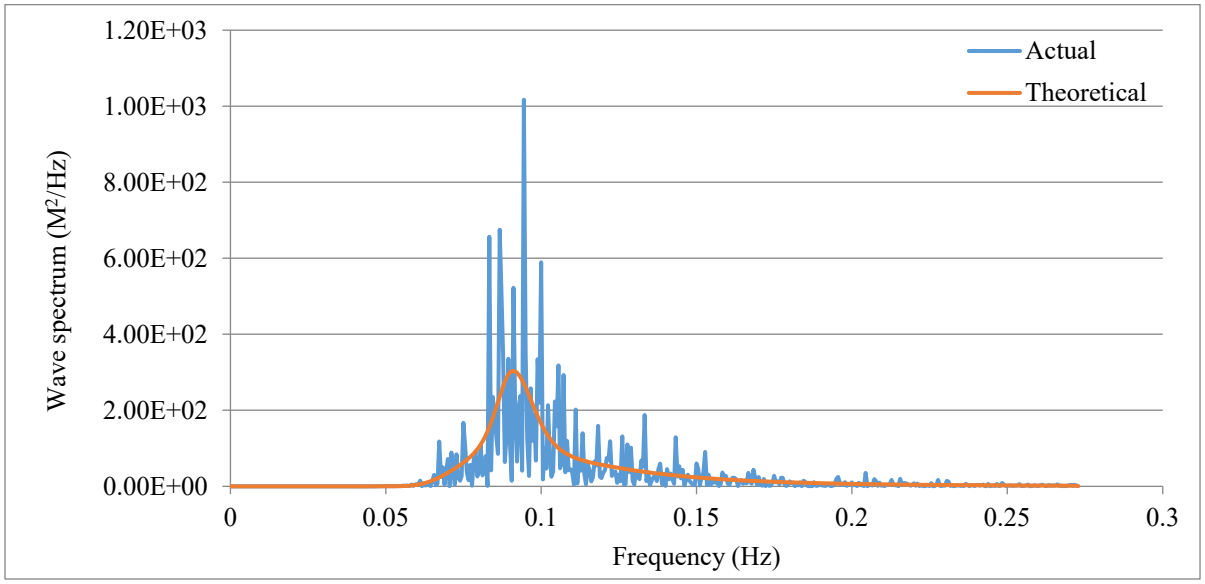

Figure S1. Comparison of the wave spectrum of the actual and theoretical one.

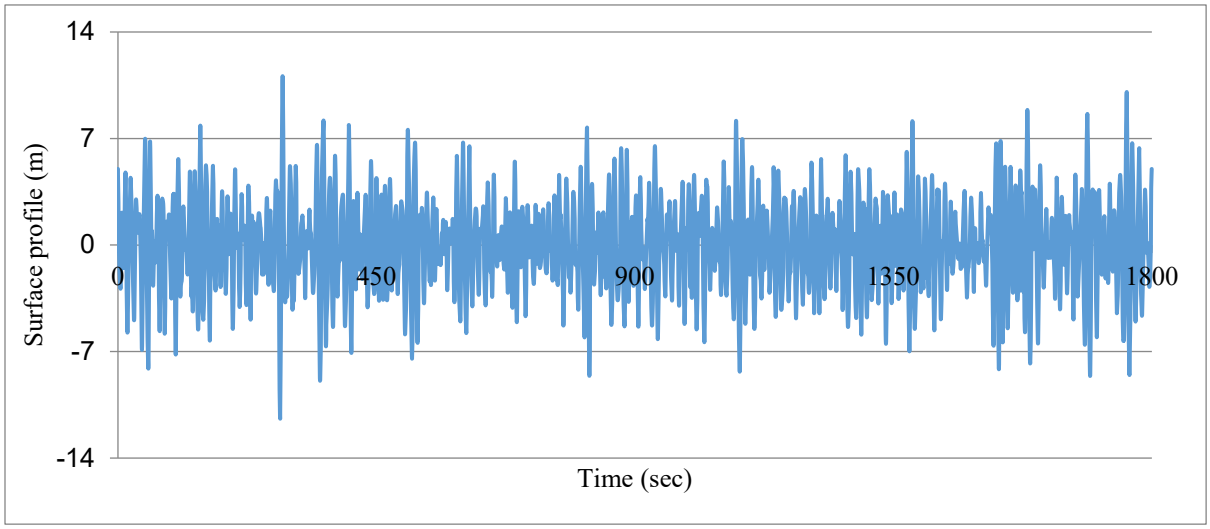

Figure S2. The time history of the water surface elevation due to wave.

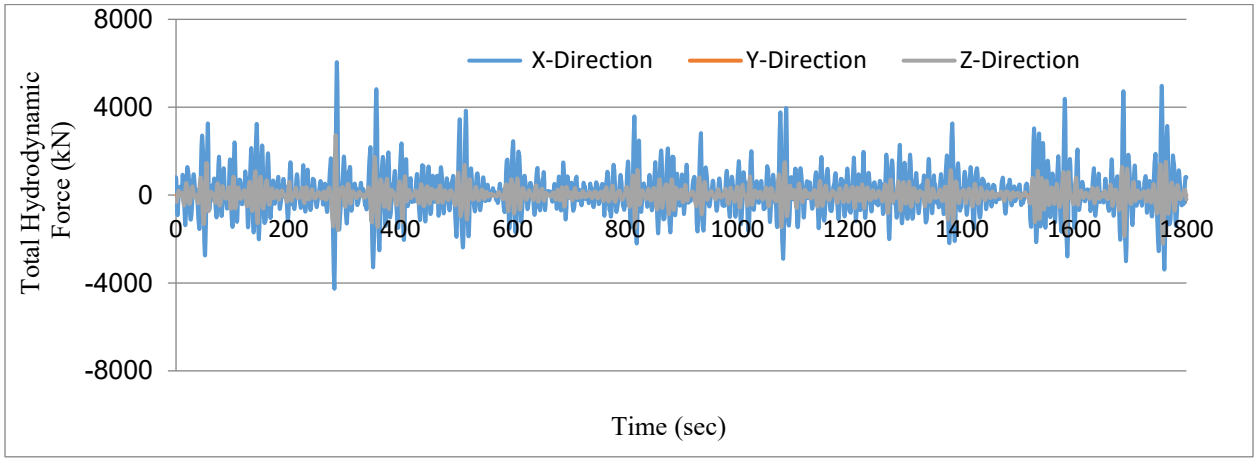

Figure S3. The time history of total hydrodynamic force in different directions.

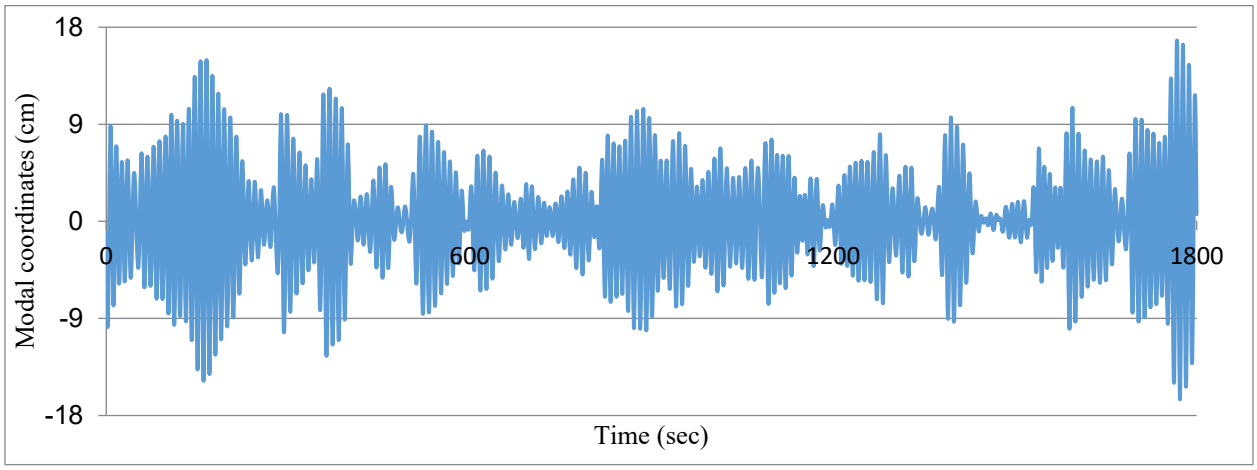

Figure S4. The time history of Modal coordinates.

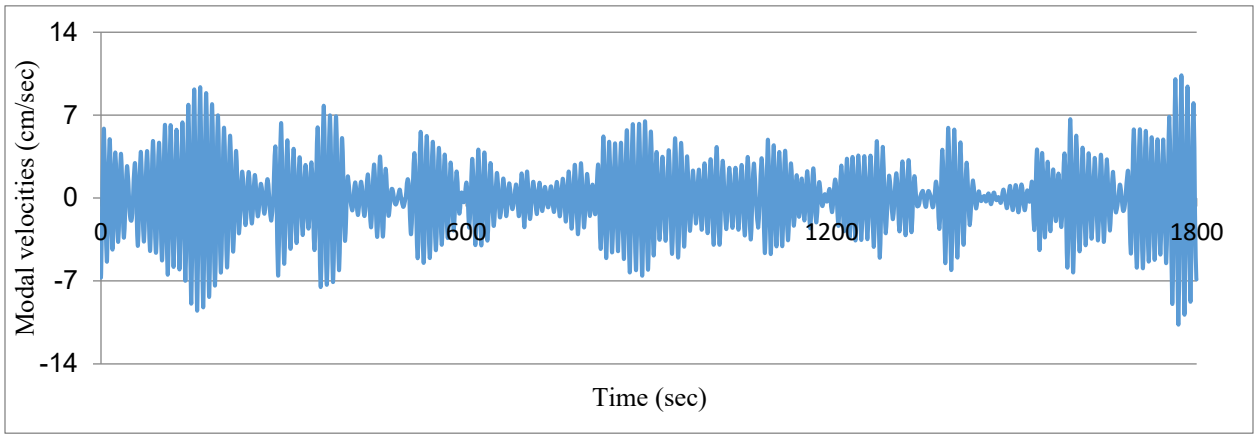

Figure S5. The time history of Modal velocities.

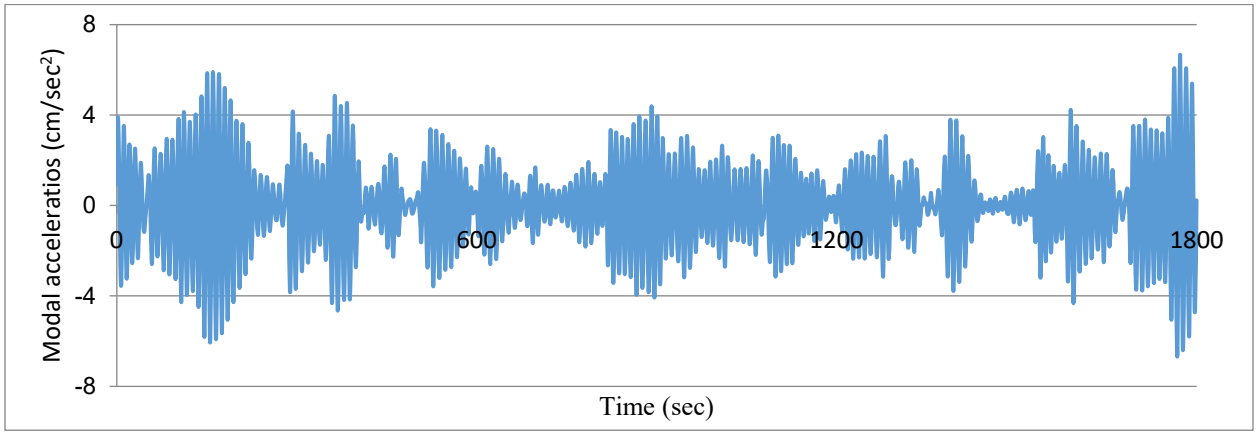

Figure S6. The time history of Modal accelerations.

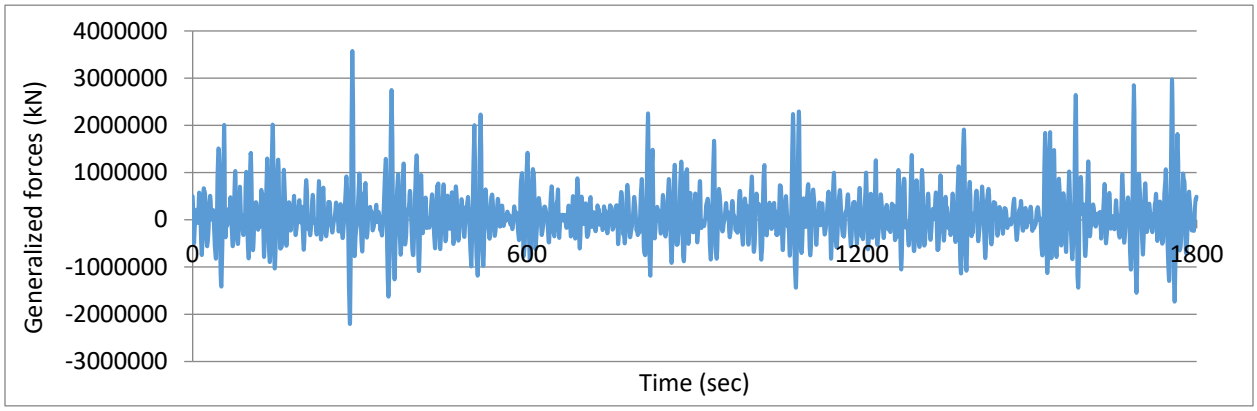

Figure S7. The time history of generalized forces.

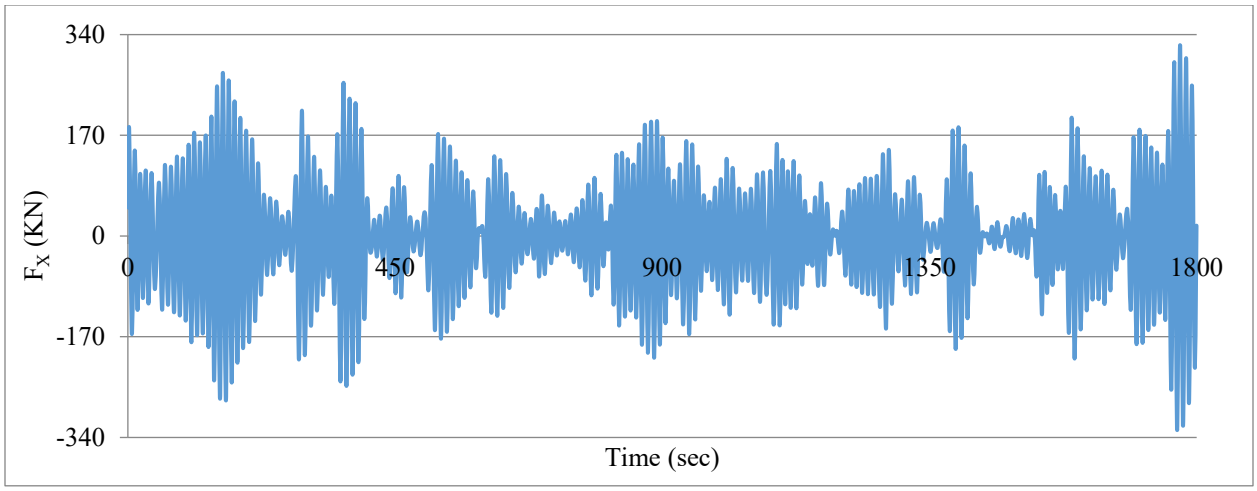

Figure S8. The time history of F_X for Element 5.

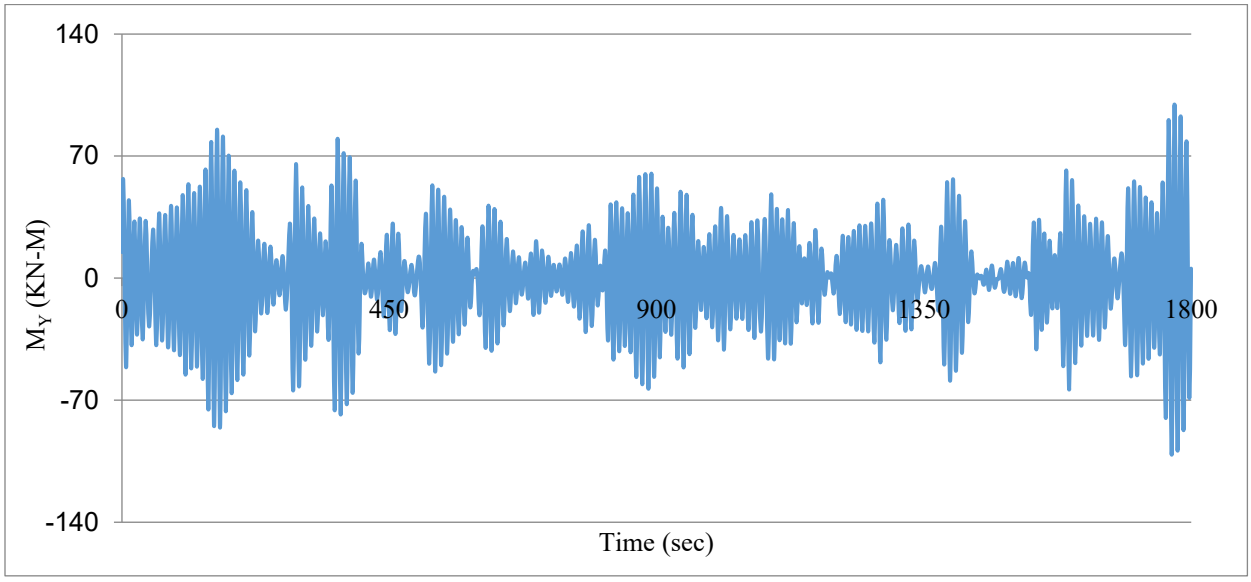

Figure S9. The time history of M_Y for Element 5.

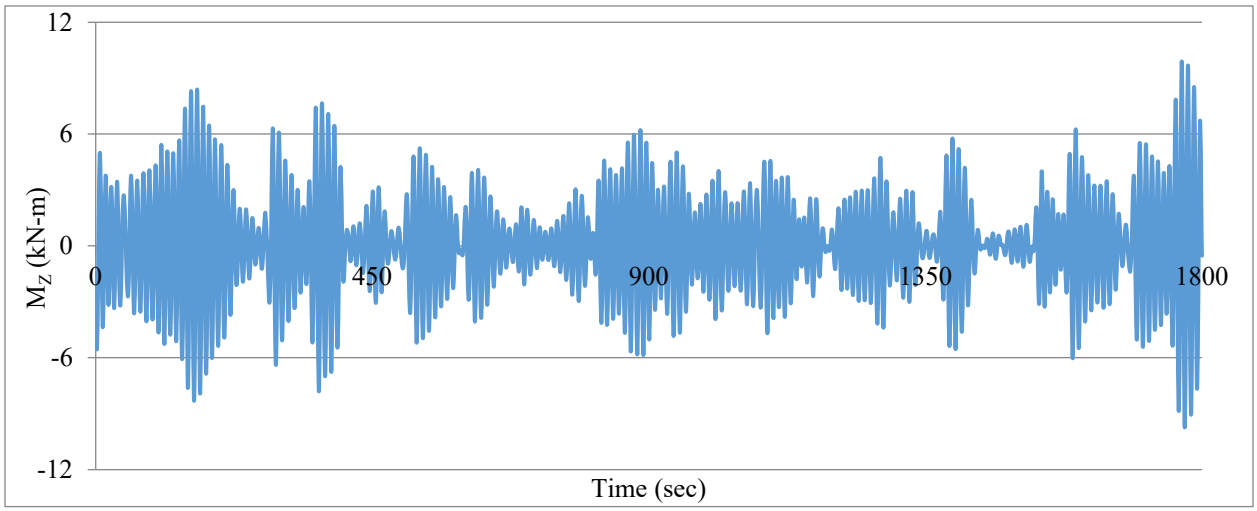

Figure S10. The time history of M_Z for Element 5.

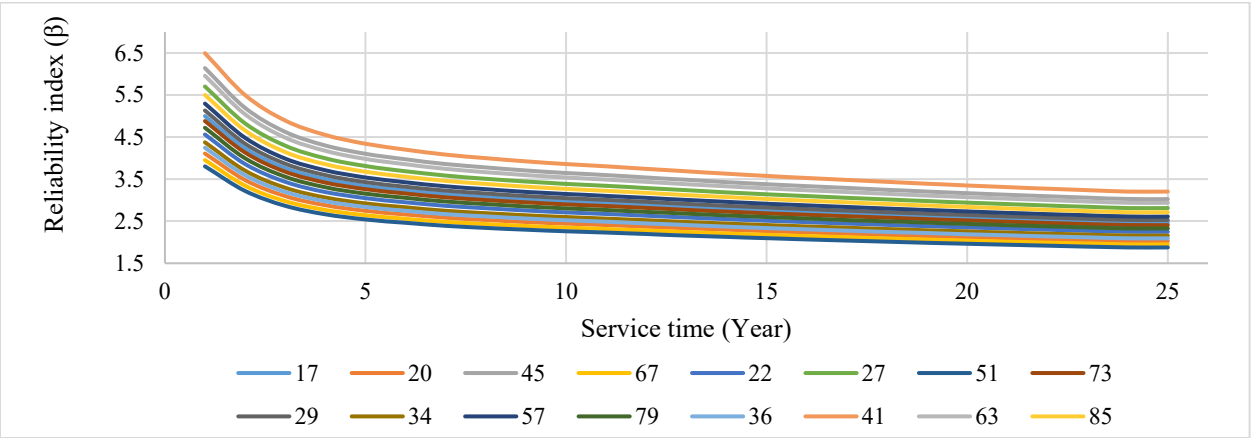

Figure S11. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Leg elements).

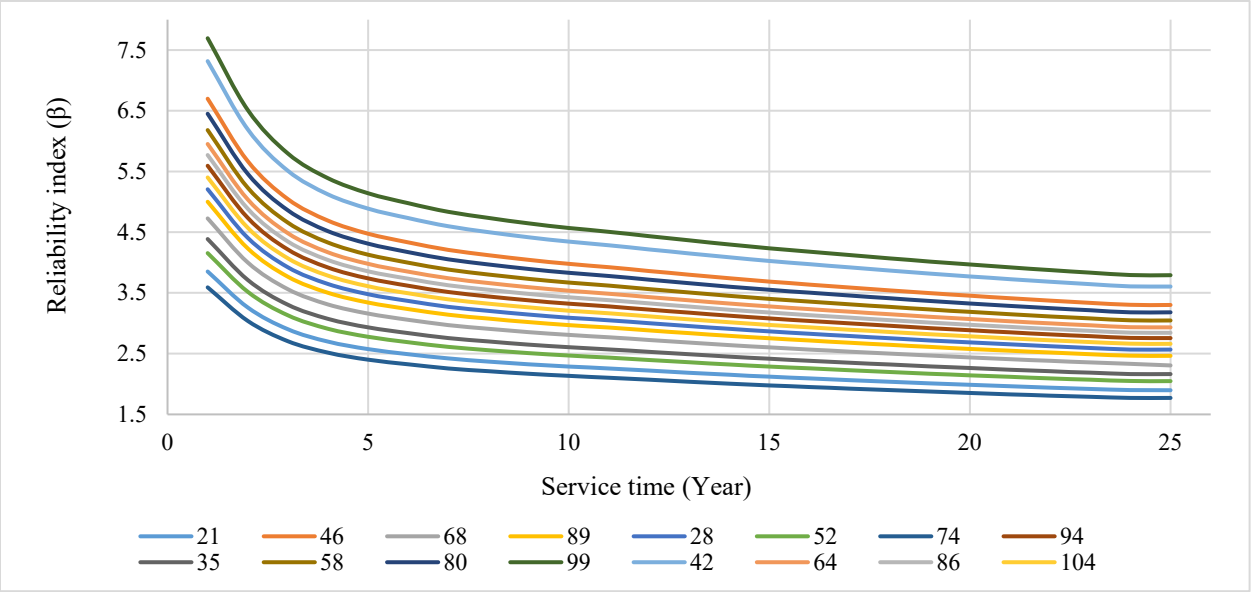

Figure S12. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Horizontal bracing elements).

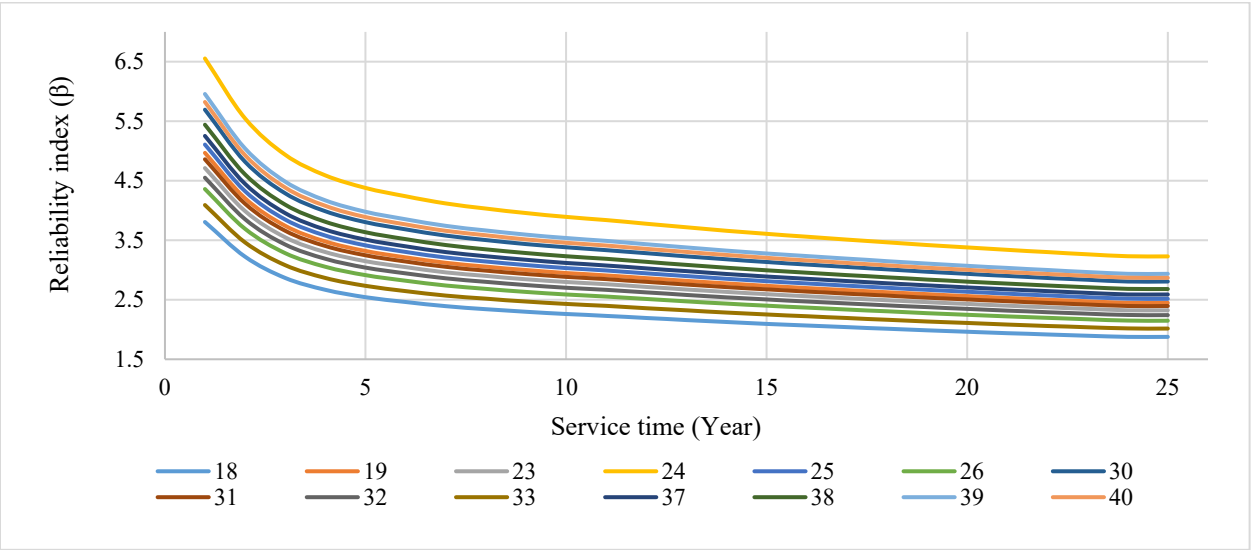

Figure S13. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Vertical bracing elements); ROW-2.

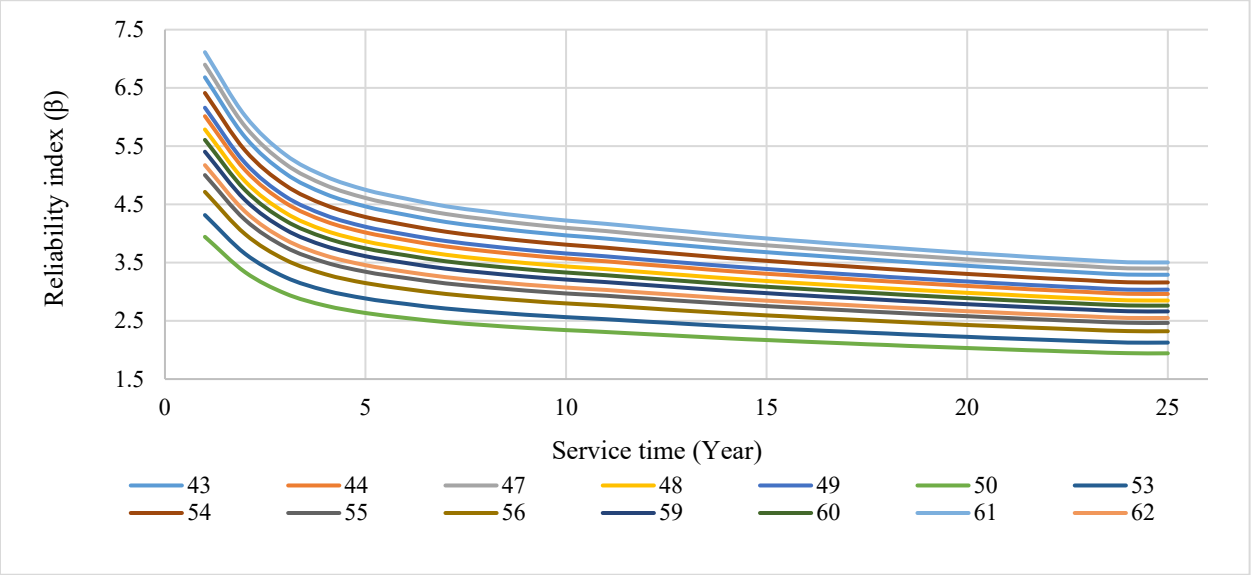

Figure S14. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Vertical bracing elements); ROW-B.

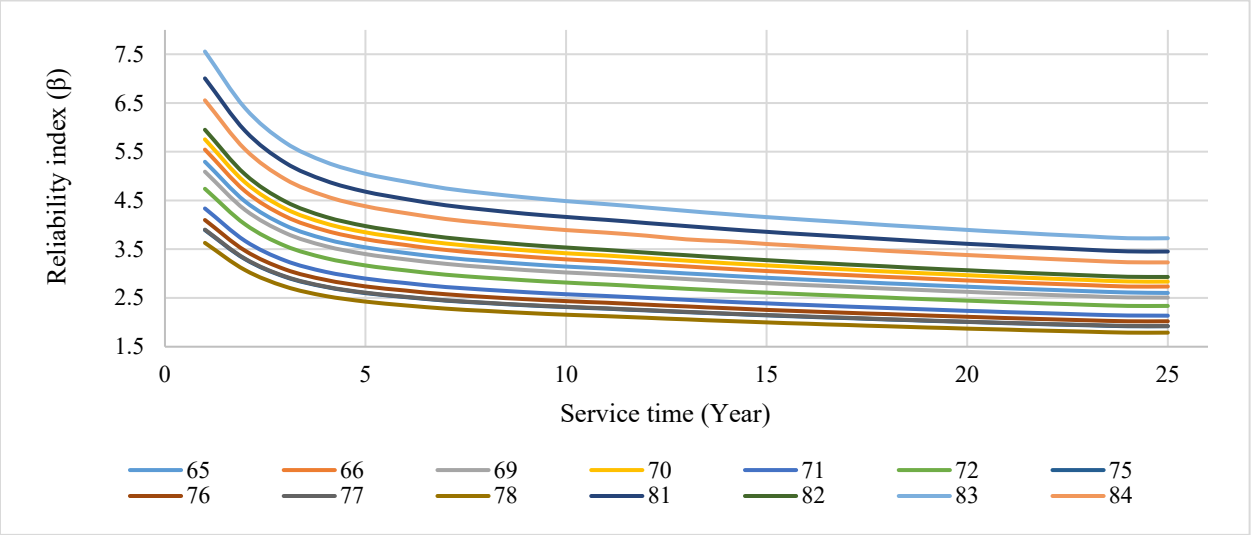

Figure S15. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Vertical bracing elements); ROW-1.

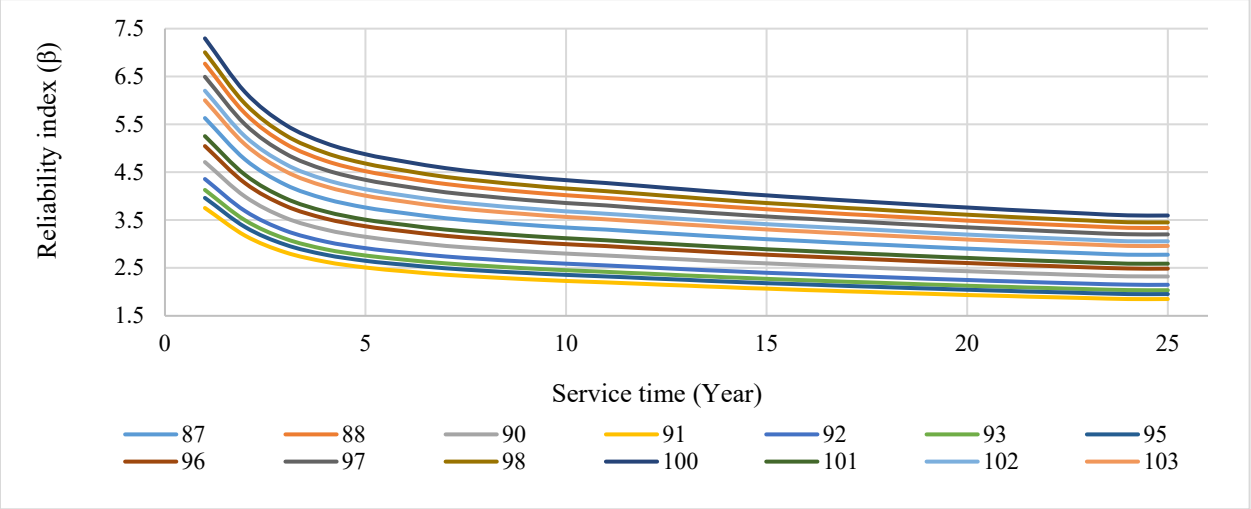

Figure S16. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for the submerged zone (Vertical bracing elements); ROW-A.

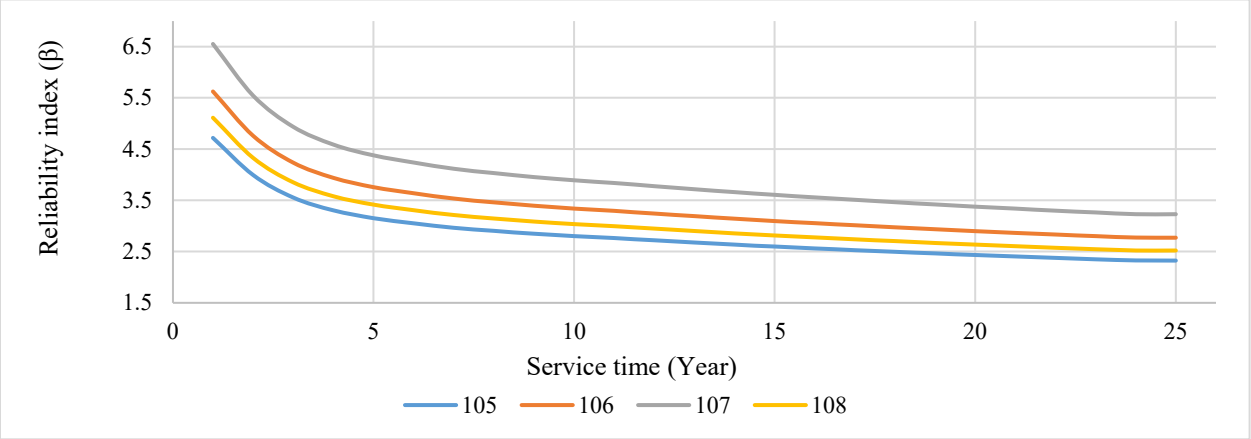

Figure S17. Comparison of variation of reliability index (**β**) of structural tubular elements over service time (T) for soil zone (Leg elements).

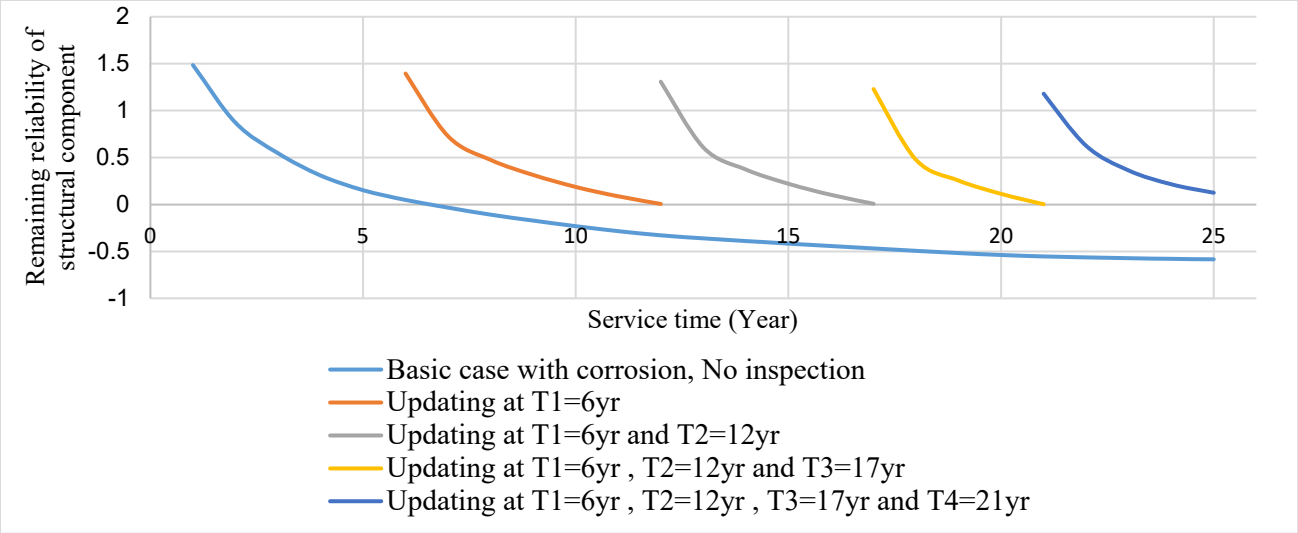

Figure S18. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 3).

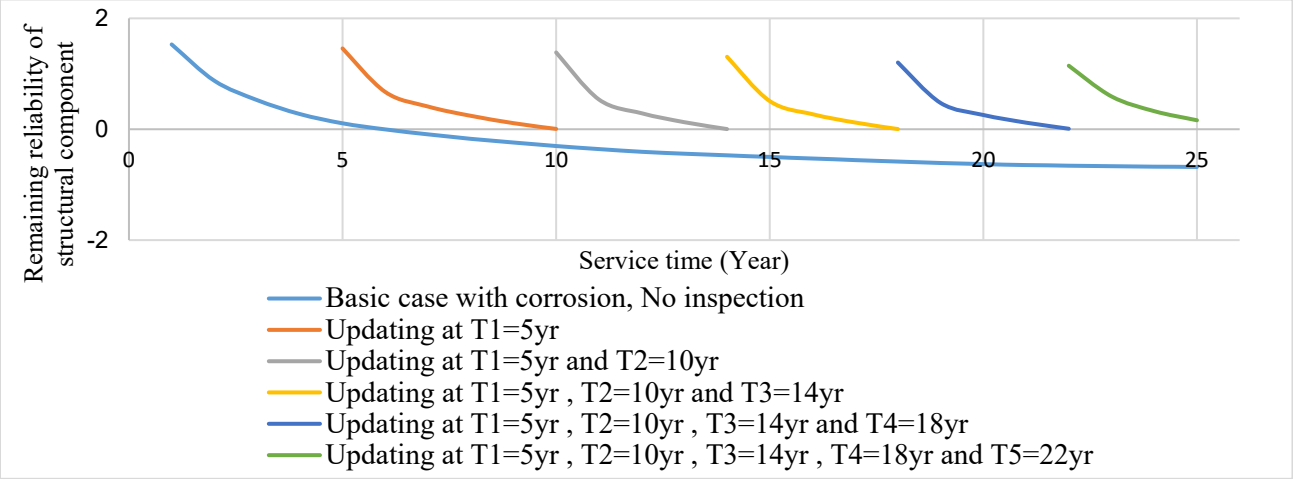

Figure S19. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 4).

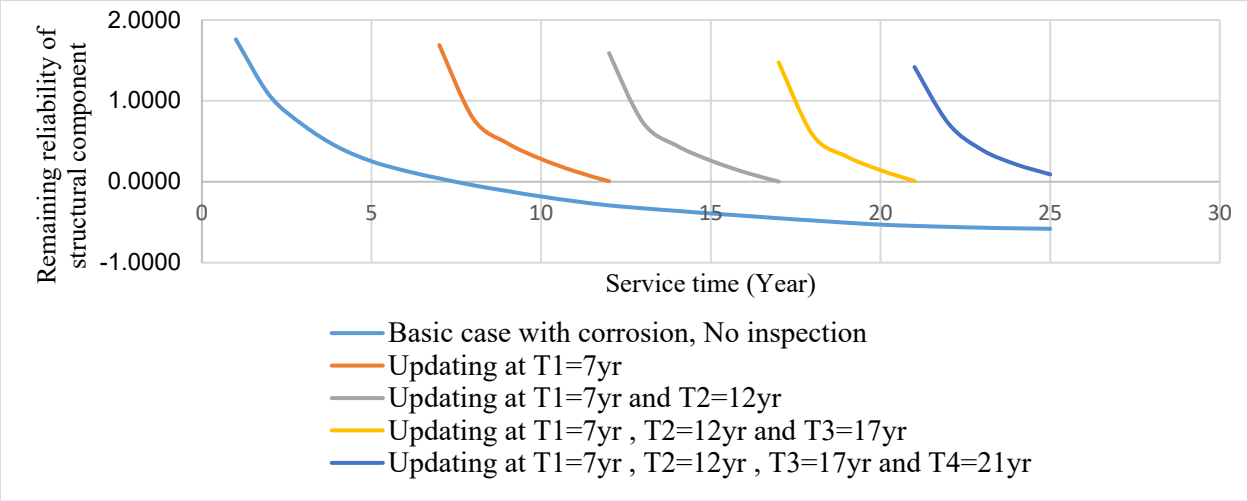

Figure S20. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 6).

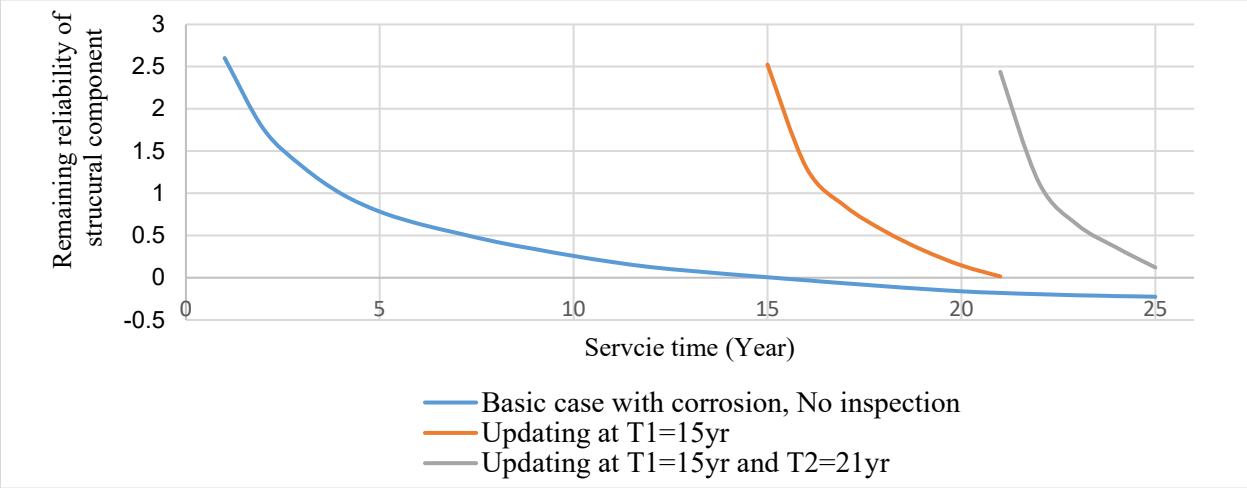

Figure S21. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 8).

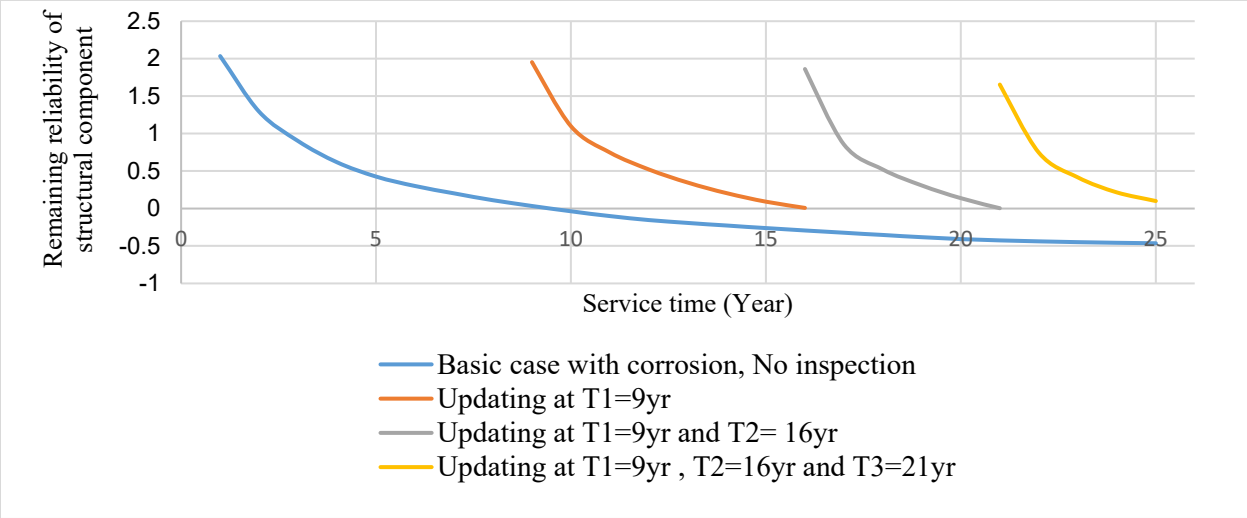

Figure S22. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 9).

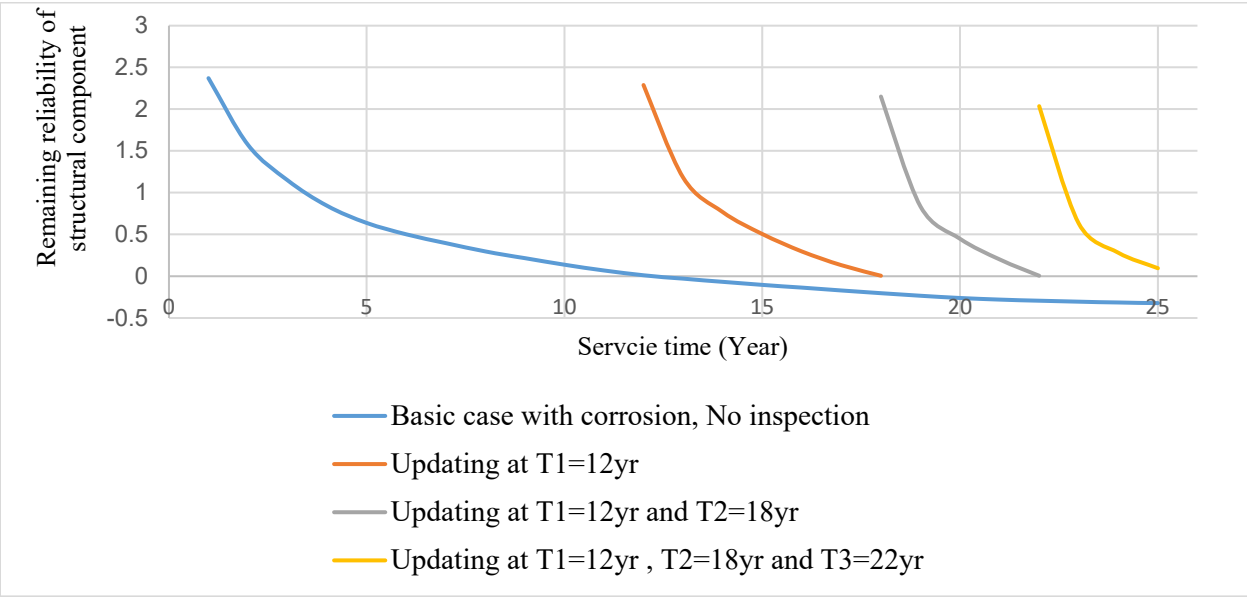

Figure S23. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 10).

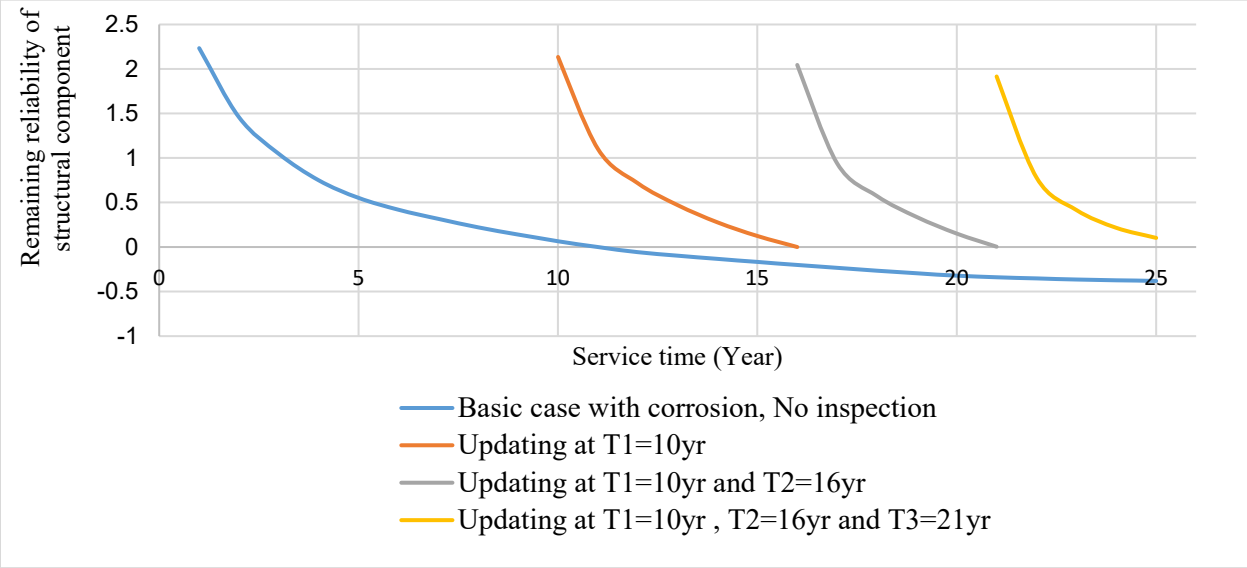

Figure S24. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for splash zone (Element 11).

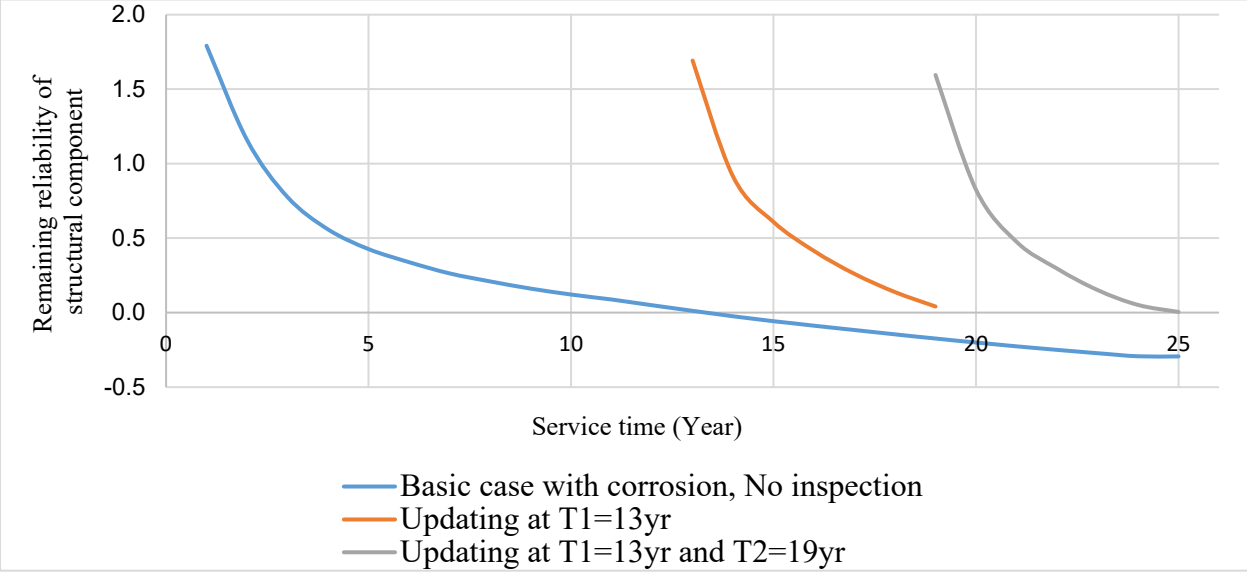

Figure S25. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 20).

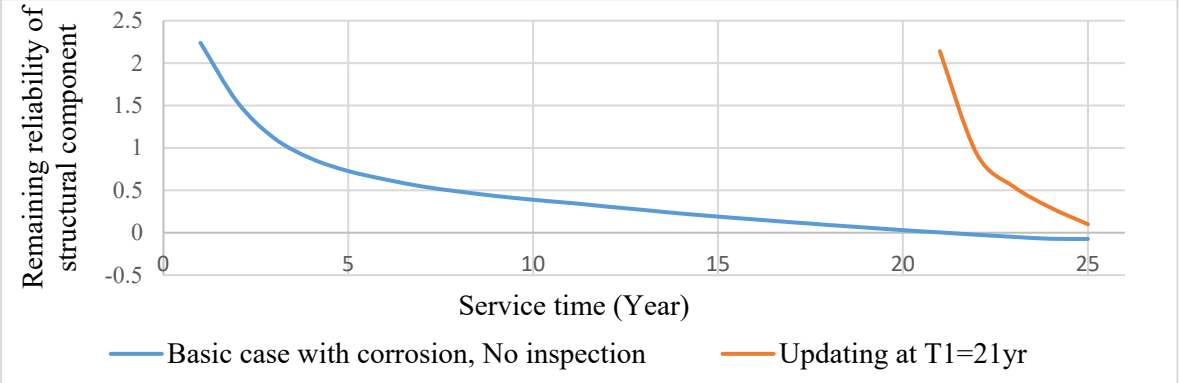

Figure S26. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 22).

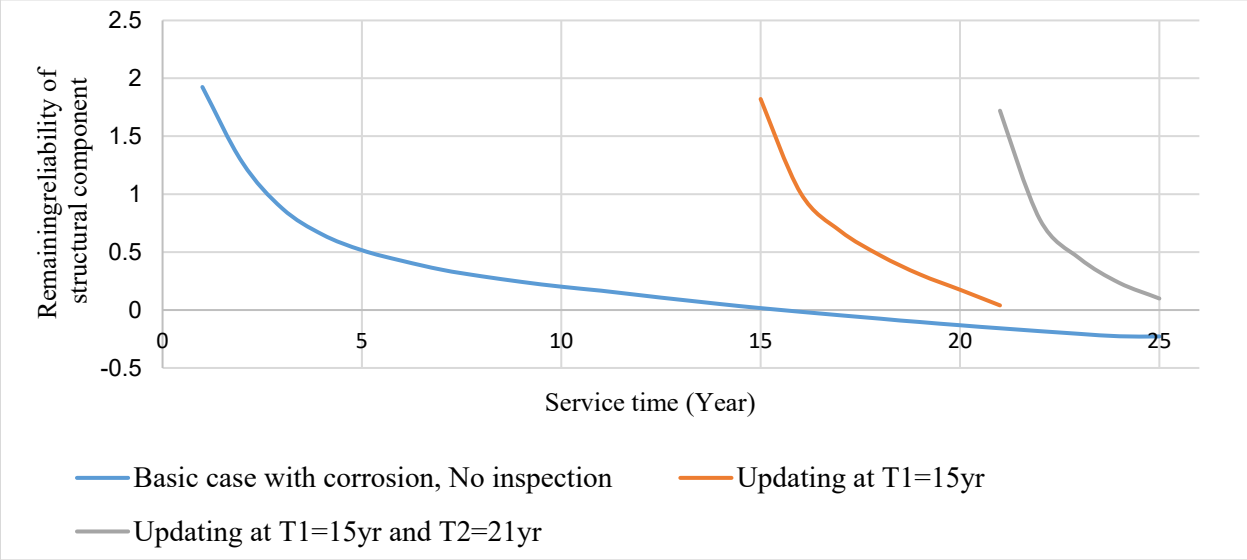

Figure S27. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 34).

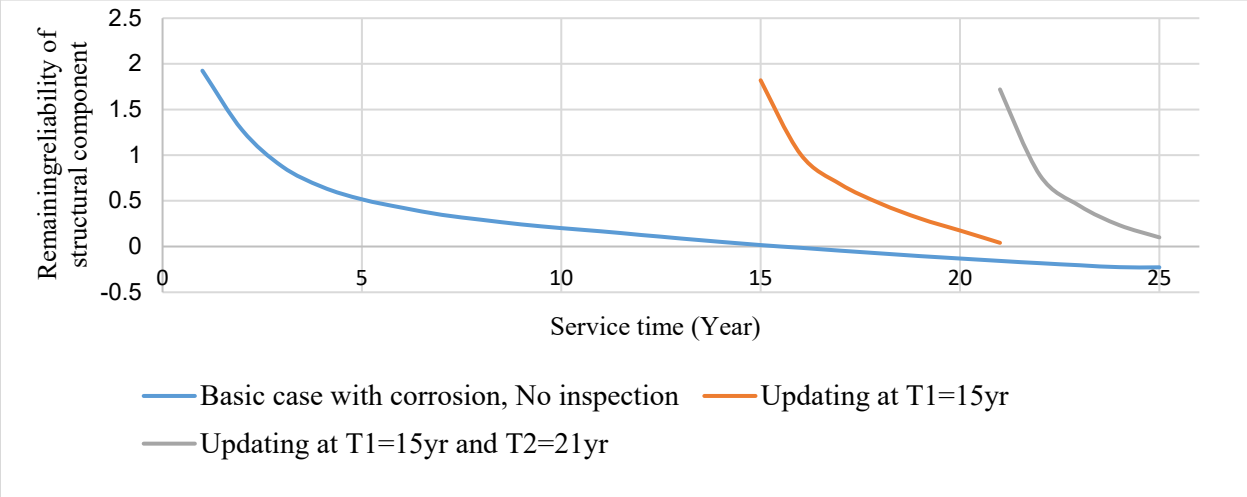

Figure S28. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 36).

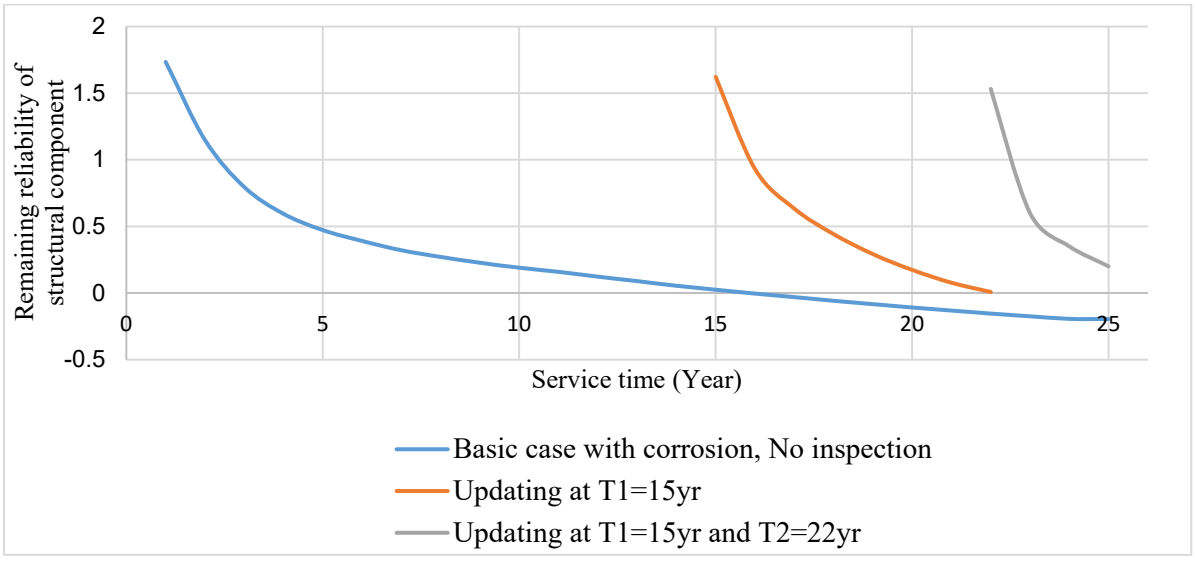

Figure S29. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 51).

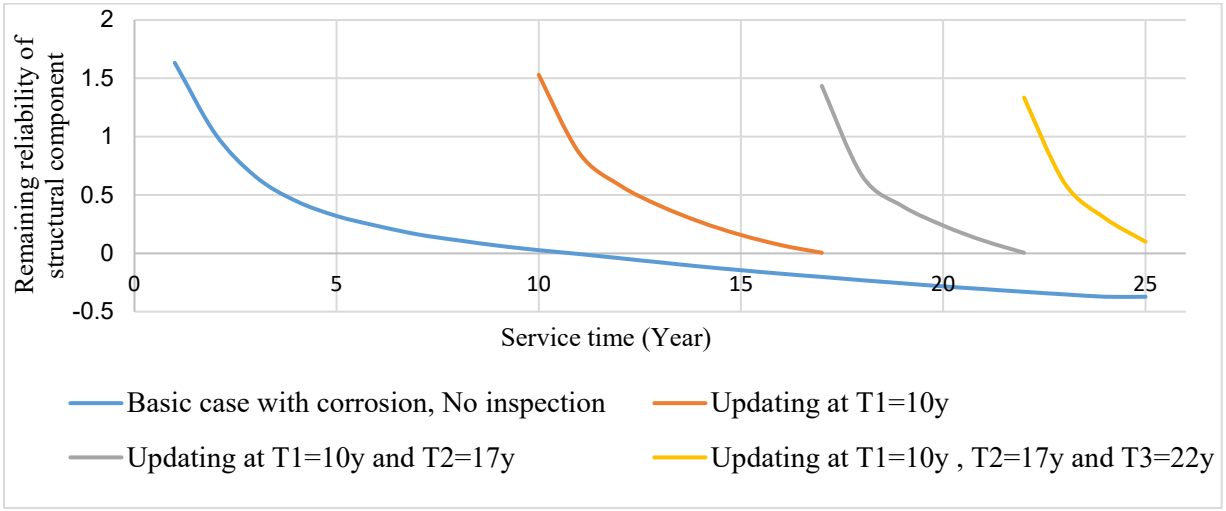

Figure S30. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 67).

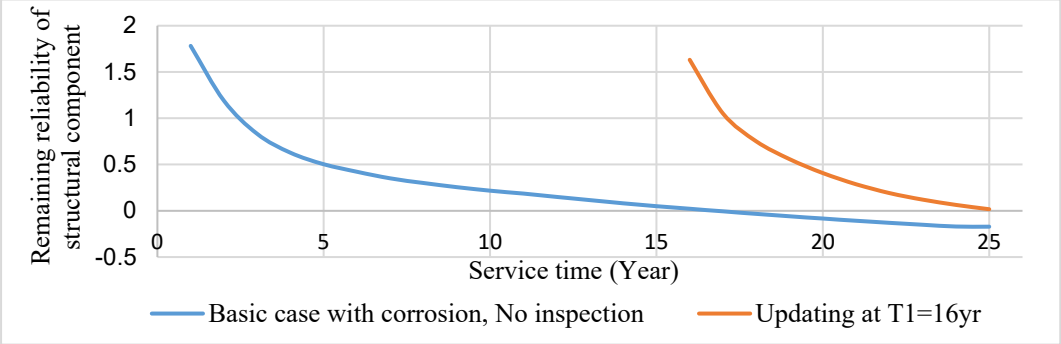

Figure S31. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 21).

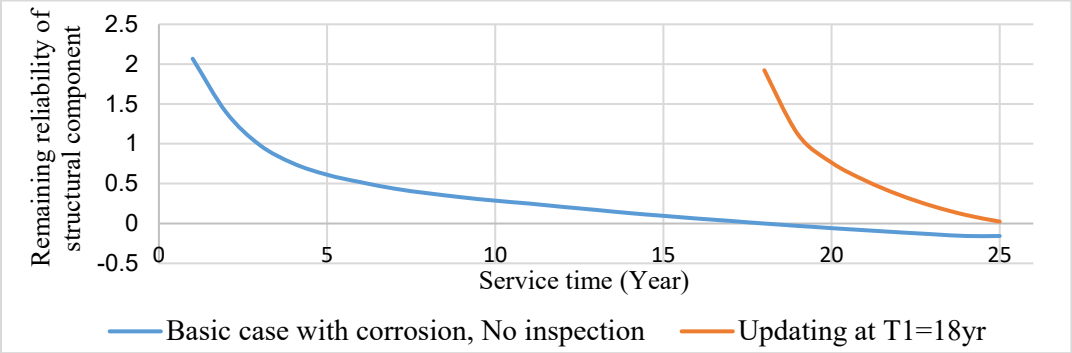

Figure S32. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 35).

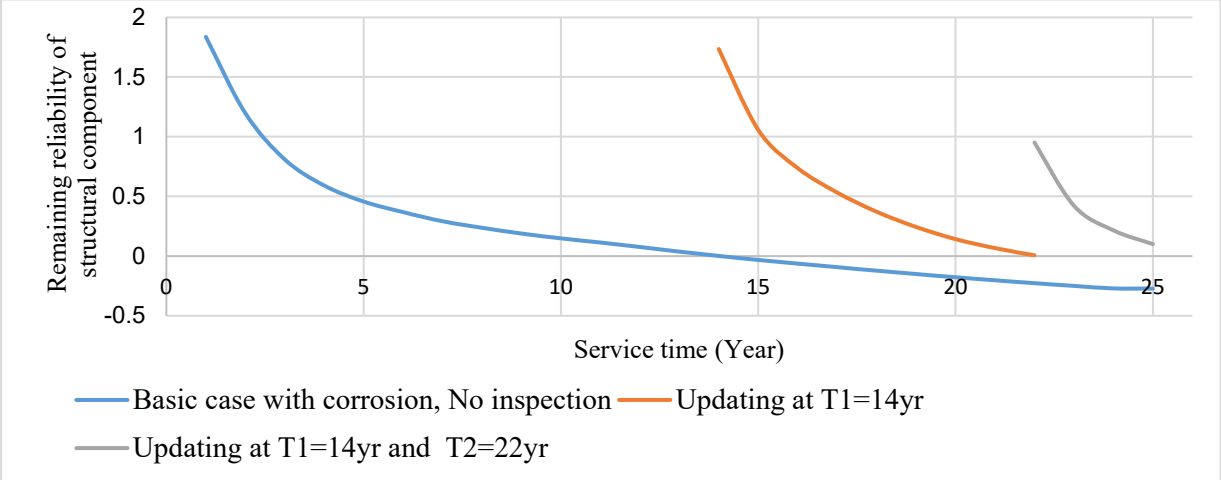

Figure S33. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 52).

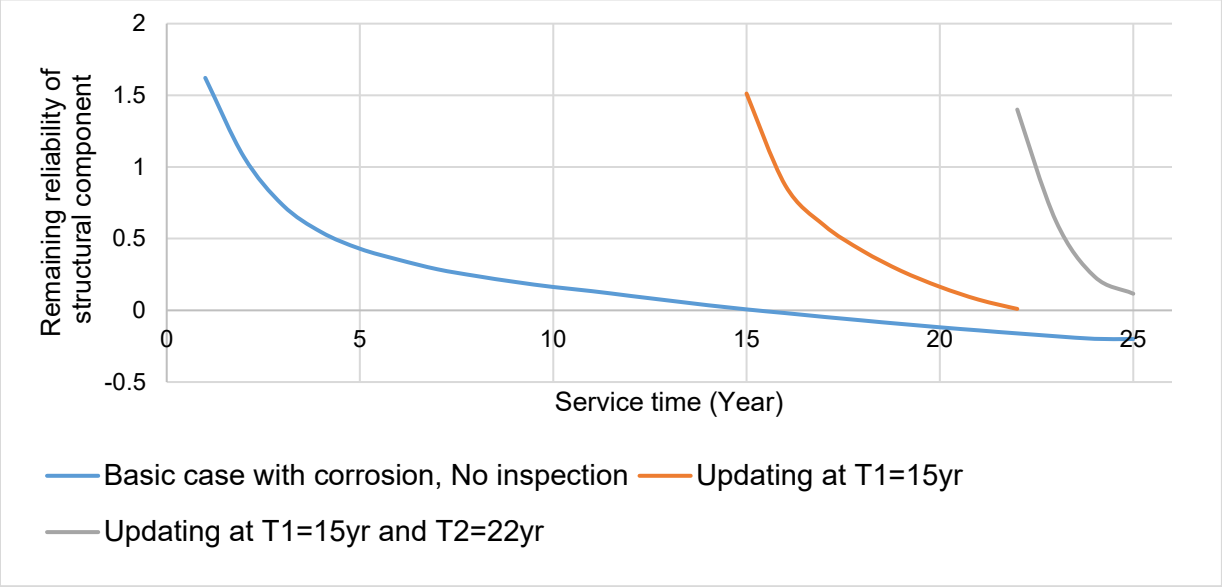

Figure S34. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 74).

Figure S35. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 18); ROW-2.

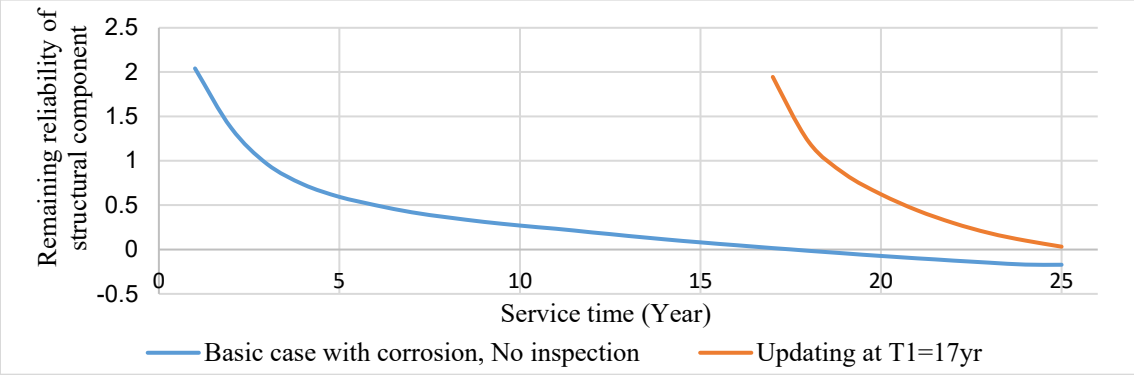

Figure S36. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 26); ROW-2.

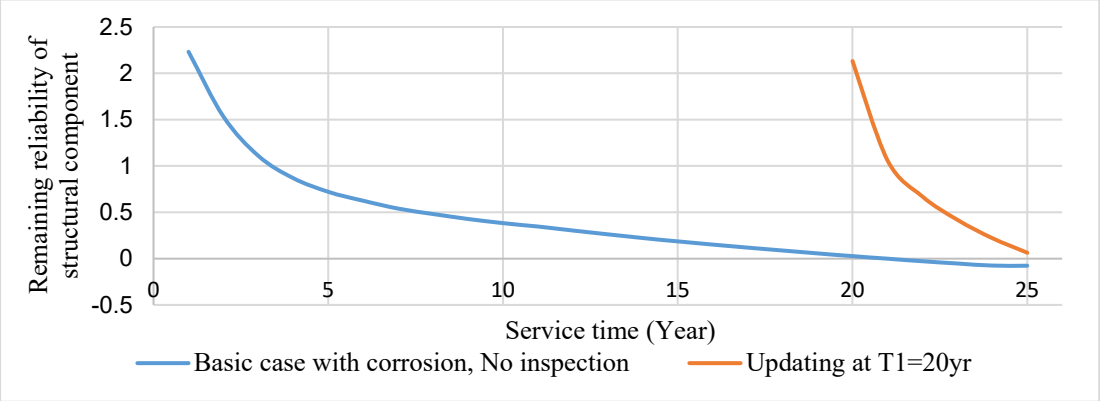

Figure S37. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 32); ROW-2.

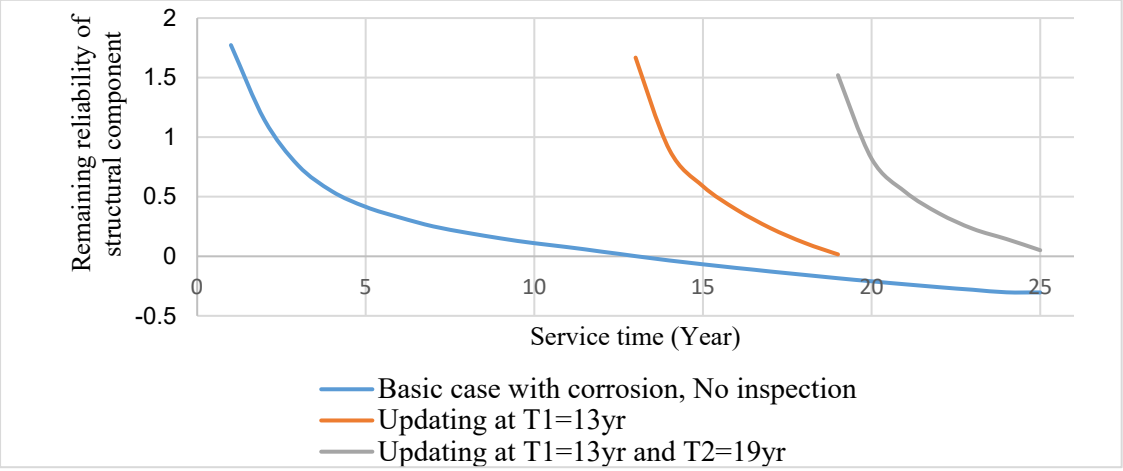

Figure S38. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 33); ROW-2.

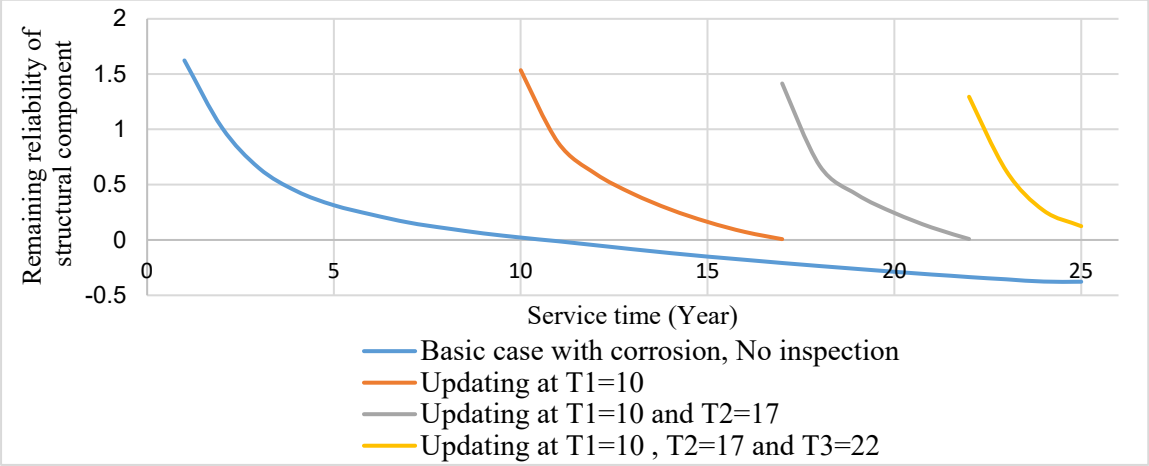

Figure S39. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 50); ROW-B.

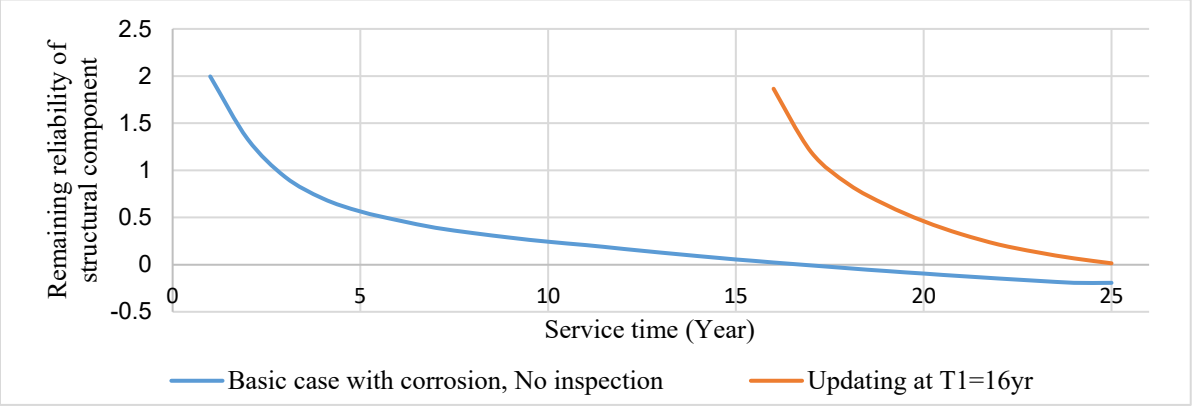

Figure S40. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 53); ROW-B.

Figure S41. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 71); ROW-1.

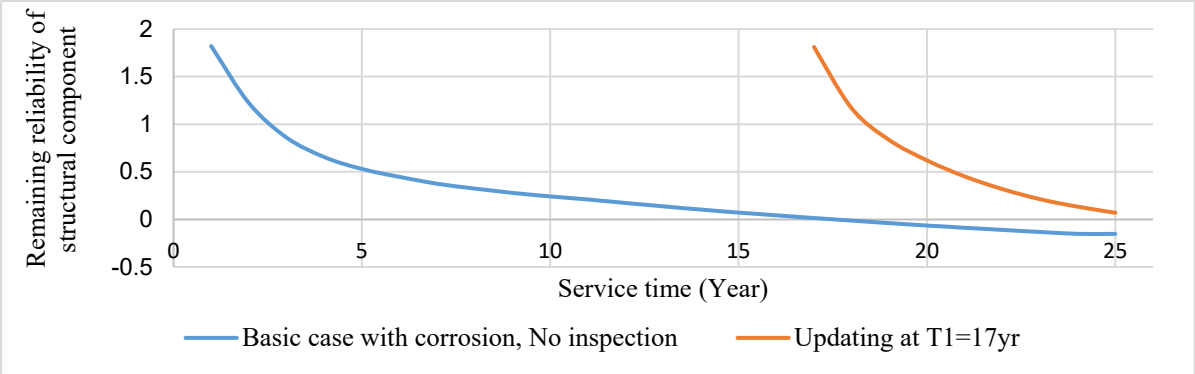

Figure S42. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 75); ROW-1.

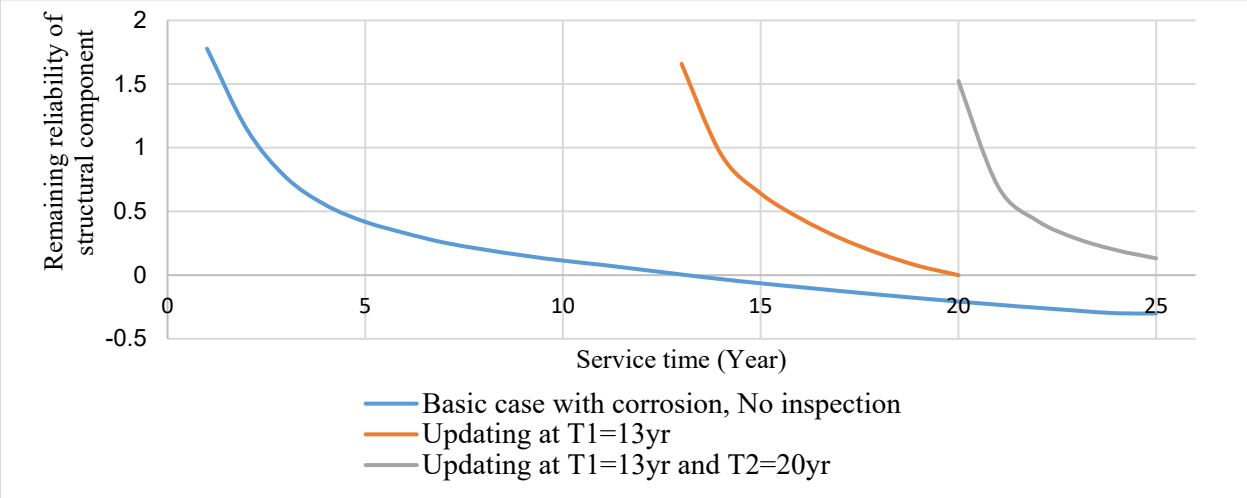

Figure S43. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 76); ROW-1.

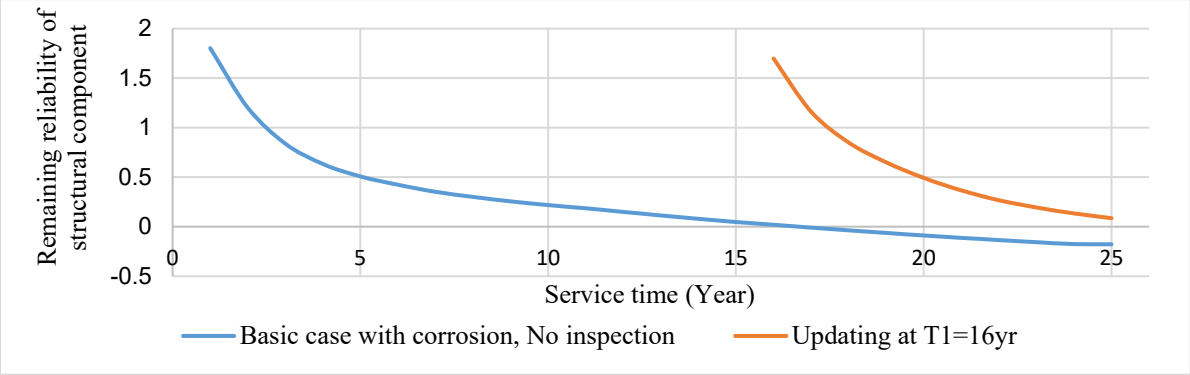

Figure S44. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 77); ROW-1.

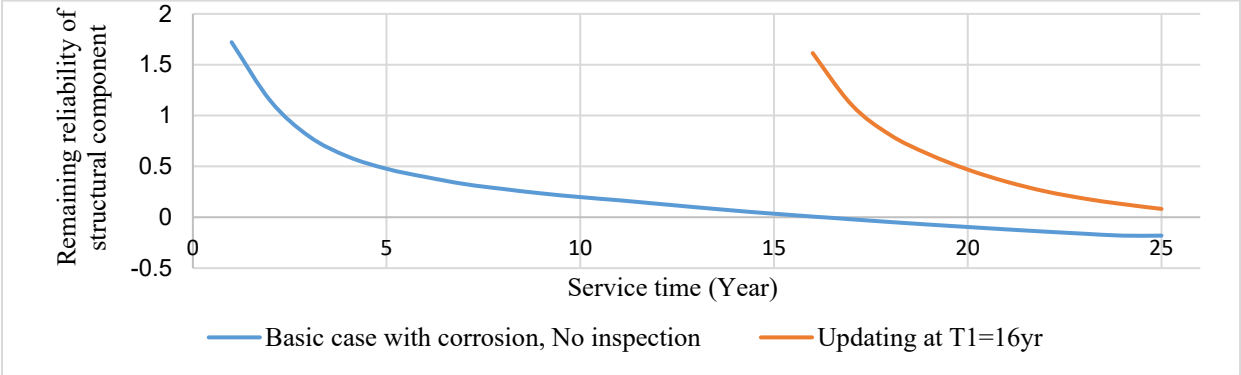

Figure S45. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 91); ROW-A.

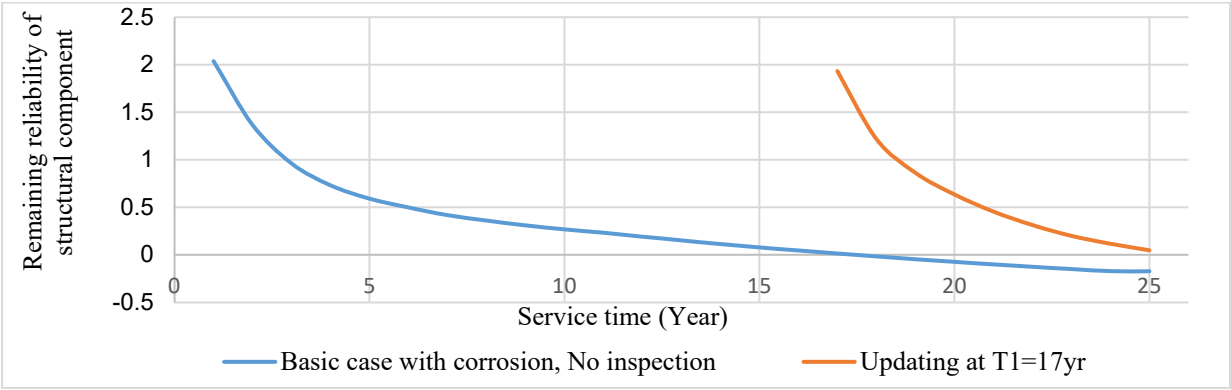

Figure S46. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 92); ROW-A.

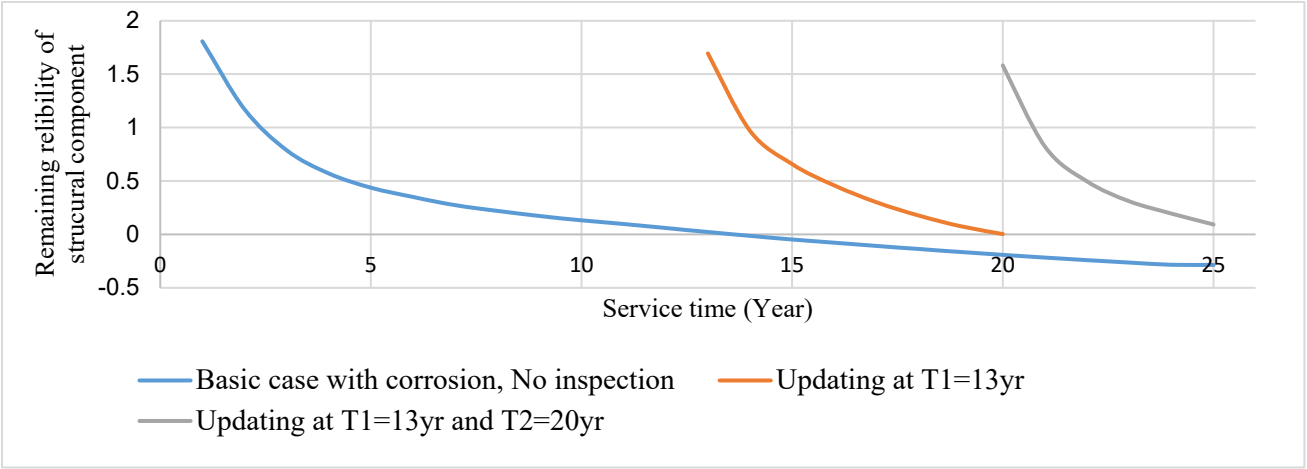

Figure S47. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 93); ROW-A.

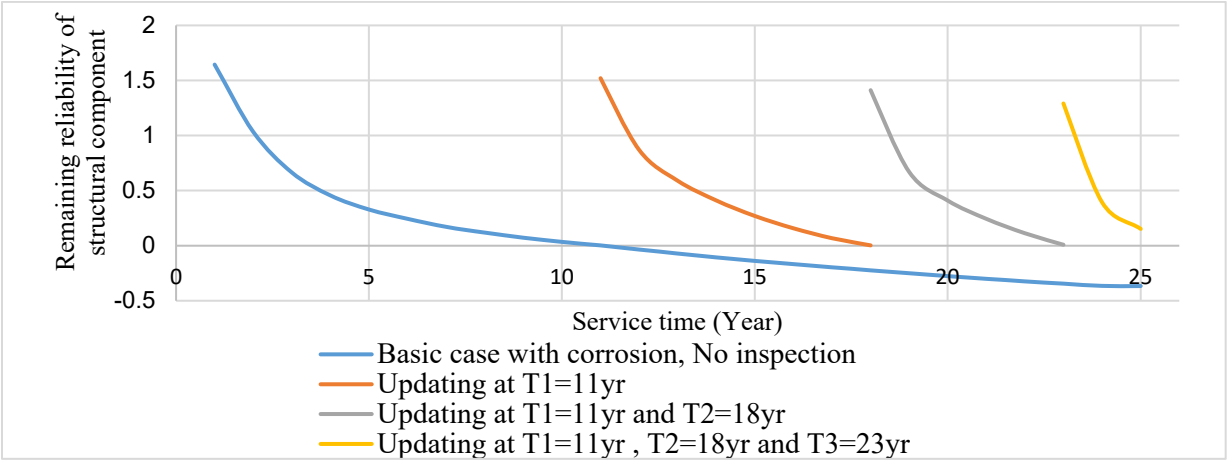

Figure S48. Effect of inspection updating on remaining reliability of tubular element (R_{rem}) over service time (T) for the submerged zone (Element 95); ROW-A.